CANADA MORTGAGE AND HOUSING CORPORATION

LARGE SCALE RENOVATION

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SUMMARY

The purpose of this study is to examine the renovation process in several multiple unit projects in both the public and private sectors, pinpointing any constraints and hence any opportunities for making that process more efficient. One major objective has been to test the commonly held assumption that large scale renovation offers the potential for achievement of significant economies of scale and that such efficiencies could lead to the development of a much greater and more organized renovation industry.

In addition to an extensive review of the renovation literature, principally from Canada, the United States and Great Britain, interviews were held with present and former staff of the City of Toronto Housing Department which had a very active acquisition and renovation program in the mid-1970's and with representatives of the recently-established Winnipeg Rehabilitation Housing Corporation. An exploration of the private renovation experience was undertaken through in-depth interviews with thirteen Toronto renovators.

The projects examined involved the renovation and/or rehabilitation of small walk-up apartment buildings with a few exceptions (three 1950's elevator buildings and some "batches" of single family houses). Although a few of the walk-up buildings date from the early 1950's, most were built between 1900 and 1930. The emphasis on these types of buildings was a function of the fact that it is within this sector of the building stock that current renovation activity tends to be concentrated. For the private renovator, such buildings are the most run down and therefore the cheapest to buy. They are also more likely to offer such selling features as large rooms, fireplaces and attractive architectural details. For the public renovator, the older buildings are both the least

expensive and the most likely to have large units suitable for families.

A number of major conclusions related to large scale renovation emerged from this study.

* Large scale renovation is currently being undertaken by small firms who handle one project at a time. The principals of such firms are very closely involved with all stages of the work. The successful renovators are already operating at a high level of efficiency. Where roadblocks in the renovation process do exist, experience is the key to overcoming them. The major exceptions are the lengthy municipal approvals process and the application of building codes intended principally for new construction.

* The potential for realizing economies of scale through such means as bulk buying and replicated procedures does not appear to be significant. Such potential is seriously constrained by the small number of units per building, the custom nature of much of the work and the inability of renovation firms to take on large jobs because of their small size and lack of sufficient capital or borrowing power.

* Public agencies, who have a direct interest in large, post-war, public housing estates, are undoubtedly in a better position to achieve economies of scale; however, the renovation industry itself is a major constraint. Smaller firms are more efficient; larger firms, burdened with higher overheads, are not as suited to an industry where close supervision and custom work play a large part.

* While this study did not attempt to examine post-war high-rise apartment buildings in detail, they do constitute a major portion of multiple unit dwellings. These buildings are

generically different from lower-rise and older building types and call for a renovation response which more closely replicates the new construction process. Given their large size and the techniques by which they were originally constructed, they may offer more potential than the older, smaller buildings to achieve economies of scale and foster the development of a renovation industry.

ACKNOWLEDGEMENTS

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STUDY TEAM

The study team consisted of Joe Berridge, Margaret Meek and Daniel Morris of Coombes/Kirkland/Berridge, Richard Griffiths, former Director of Development for the City of Toronto Housing Department and Terry Mills, President of the Renovator's Council of the Toronto Home Builders' Association.

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1. INTRODUCTION

The issue of upgrading Canada's housing stock is a timely one since it is expected that the existing stock of dwellings will house the majority of the population for the next few decades. New housing starts have been at very low levels for several years, and since housing affordability is expected to remain a problem and new family household formation rates will continue to be low, levels of new construction will not increase significantly.

There has already been a great deal of renovation activity in Canada, particularly in the area of owner-occupied single-family houses. Similarly, research efforts have focussed on issues related to the renovation of such housing. The nature of the renovation industry itself, the physical renovation process and the renovation of multiple-unit structures are topics which have just begun to be discussed.

Apartment renovation has received very little attention although apartment buildings comprise a significant percentage of the housing stock. According to the 1981 census, apartments make up almost 40% of the dwelling units in cities of over 100,000 people; forty per cent of these apartments are in buildings of five storeys or more and 60% are in smaller buildings. At the same time, the increasing numbers of older people, the formation of new households as a result of separation and divorce and the issue of housing affordability will ensure a continued demand for apartments.

In addition to reviewing the literature on renovation, this study explores the large scale renovation process, based on the experiences of Cityhome in Toronto, the Winnipeg Housing Rehabilitation Corporation and a number of private renovators in Toronto. It seeks to identify potential roadblocks in the renovation process and how industrial efficiency might be maximized. The potential for achieving economies of scale is discussed.

The study was carried out largely through interviews with both public and private renovators. For reasons of practicality, the study focussed on the renovation experience in Toronto although interviews carried out in Winnipeg served to illustrate some of the difficulties facing any public agency trying to establish a program of acquisition and renovation.

Before describing the study components, it might be useful at this point to present some definitions. Those of "rehabilitation" and "renovation" are taken from David Hulchanski's recent literature review.*

> _Rehabilitation_ - Structural upgrading and facade improvement to existing housing units in order to at least meet minimum municipal bylaw standards.
>
> _Renovation_ - Improvements to existing housing which go beyond minimum standards established by municipalities.
>
> _Large scale Renovation_ - Renovation of multiple units at a single time and as part of the same job.

Large scale renovation is a term which could mean either the renovation of an apartment building or the renovation of several houses taken as a batch. For the purposes of this study, primary emphasis is placed on apartment renovation although the batch renovation of houses is cited where it sheds light on the process of large scale renovation generally.

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* J. David Hulchanski, _Urban Residential Land Use - Conservation, Densification and Intensification: A Review of the Literature_ (Draft), prepared for Ontario Ministry of Municipal Affairs and Housing and Association of Municipalities of Ontario, 1982.

The study is divided into three major components. The next section contains a review of the renovation experience of the City of Toronto Non-Profit Housing Corporation (Cityhome). Section 3 looks at the experience of the Winnipeg Housing Rehabilitation Corporation. In Section 4 a number of private developers/renovators were interviewed to provide an overview of the private apartment renovation process in Toronto. The final section outlines the findings and conclusions of the study.

Appendix A is a copy of the questionnaire which acted as a framework for the private interviews. Appendix B provides a brief decription of three large scale renovation projects carried out elsewhere and is provided in recognition of the fact that many other countries have had more experience with large scale renovation. Appendix C is an annotated bibliography of several works dealing specifically with either large scale renovation or the renovation industry. Appendix D is a general bibliography of literature relating to residential rehabilitation.

2. CITY OF TORONTO NON-PROFIT HOUSING CORPORATION*

2.1 Overview

Cityhome, the City of Toronto Non-Profit Housing Corporation, was established by City Council in April 1974 in order to develop new housing and acquire and renovate existing housing for low and moderate income people. Cityhome was also to provide for the physical implementation of Council's policy of preserving the City's residential neighbourhoods.

The creation of Cityhome was preceded by a number of events. Housing options for low and moderate income people were rapidly disappearing. The cost of housing was increasing, and the character and demographics of neighbourhoods were changing. In a city where almost 60% of the residents were tenants, rents were increasing beyond the ability of many to pay; rent controls would not be implemented in Ontario until 1976.

Widespread high density redevelopment in the 1960's not only threatened to destroy existing neighbourhoods but replaced the existing housing with that which was not suitable for families. Although City Council had already moved to limit such redevelopment, some assembled sites still existed in 1974. In many areas, which were now protected from redevelopment, houses were being bought and improved in increasing numbers by middle-class "whitepainters" whose actions not only served to upgrade the housing stock and stabilize neighbourhoods but often resulted in the displacement of low income tenants and the deconversion of multiple-unit dwellings back to single family use. Finally, there was some pressure to upgrade small apartment buildings for "luxury" use, a trend which was only just beginning in 1974.

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* Statistical information in the Cityhome section is based on the Annual Reports of the City of Toronto Housing Department.

Both new construction and the acquisition and renovation of existing properties were seen by the City of Toronto as strategies to maintain a stock of affordable housing. Although the acquisition of existing housing did not serve to increase the City's stock, it was thought desirable for several reasons. Existing housing units were relatively inexpensive compared to new construction and would therefore carry lower rents. By bringing them into the public non-profit sector, rents could also be controlled in the future. Since they were already part of a neighbourhood's physical fabric, housing for low and moderate income people could be maintained without disrupting existing neighbourhoods. Single-family houses and small apartment buildings were preferred since they were most suitable for families.

Cityhome, in its first four years, was equally a buyer/ renovator and a developer. By the end of 1978, it had bought 225 scattered houses and 1,155 units in existing projects and had built 1,110 new units. Since 1978 its efforts have almost entirely been in the area of new construction, and the current protfolio consists of 264 scattered houses, 802 units in acquired projects and 3,439 units in new projects. The absolute decrease in acquired units is due to the sale of three existing projects to the tenants for operation as cooperatives.

The very definite move away from acquiring existing housing came about for a number of reasons. The supply of inexpensive single family housing was felt to be exhausted. It had become more difficult to find apartment buildings with grade-related family units. After the implementation of provincial rent controls, it no longer made sense to acquire existing units in order to maintain a stock of rent-controlled housing, and existing units did not increase the supply of housing. The preservation of neighbourhoods remained the one major rationale for a continuing acquisition program.

This move away from acquisition was formalized in 1978 when responsibility for administering the federal non-profit program was transferred to the Province. While the preservation and upgrading of the existing housing stock was of concern, the Province preferred to leave this to the private sector. In terms of the public provision of housing, it was the Province's view that acquisition did not increase the total rental supply and might in fact result in the displacement of tenants. Many older apartment buildings had low rents, and all tenants might not have been able to afford the new market rents which Cityhome was obliged to set under the terms of the 1978 program.

Major Acquisitions, 1974-1978

Small Apartment Buildings	No. of Units
Bain Avenue	260
Spruce Court	78
3 Laxton Avenue	42
102 Tyndall Avenue	24
College View Apts.	49
98 Elmer Avenue	36
42 Hubbard Blvd.	27
80 Kippendavie	20

Groups of Victorian Houses

Dundas/Sherbourne
Hydro Block
Dundas/Beverley

Other Houses	
Scattered houses	228 houses
South St. Jamestown	317 rooms

2.2 Acquisition Process

Cityhome's first acquisitions were buildings slated for either conversion or redevelopment. Before their purchase, Bain Avenue and Spruce Court were to be upgraded to luxury accommodation. Both were low-rise projects built prior to World War I, and at 260 and 78 units respectively, they were the largest projects acquired by Cityhome. Dundas/Sherbourne and the Hydro Block, on the other hand, were saved from redevelopment; each was a group of large Victorian houses which were converted by Cityhome to flats and rooms.

During 1974 and 1975, Cityhome bought six small apartment buildings containing between 20 and 50 units. No suitable apartment buildings were found after 1975, mainly because of the price constraints of the non-profit program.

Also beginning in 1974, Cityhome embarked upon two programs of house buying - scattered housing for single family use and rooming houses. By the end of 1978, there were over 200 houses scattered throughout the city and over 300 rooms in houses in the South St. Jamestown area east of downtown.

C.M.H.C. provided Cityhome with block funding on an annual basis, thus setting a context within which the acquisitions took place. The search process itself began when Cityhome advertised in the local real estate press. From then on, properties were brought to Cityhome. Likely properties would first be inspected by a Cityhome project coordinator, who would prepare a preliminary renovation budget based on the work needed to bring the building up to the standards of the Building Code. In the case of apartment buildings, technical advice would sometimes be sought. Another inspection and appraisal would then be undertaken by C.M.H.C.

A pro forma for each property would be assembled, and Cityhome would make an application for funding to C.M.H.C. Each apartment building received individual treatment but the scattered houses were packaged into groups in order to reduce the amount of paperwork required. Initially, these groups would comprise two or three houses and later up to ten or twelve.

Approximately 12% of all properties inspected in 1974-75 were bought by Cityhome. The principal criterion was price. Essentially Cityhome bought any building whose purchase price plus renovation cost was below a price ceiling established by a combination of federal and provincial programs. At the time neither Cityhome nor C.M.H.C. staff had had much experience with renovation; in the clear light of hindsight, they admit to having made some bad buys in this early period as a result of underestimating the amount of renovation work needed.

2.3 Funding Programs

Cityhome acquired and renovated existing housing using a combination of the original C.M.H.C. non-profit program set up in 1973, the C.M.H.C. Residential Rehabilitation Assistance Program (RRAP) and Ontario's Community Sponsored Housing Program (CSHP). Under the non-profit program, C.M.H.C. provided a 10% capital contribution and a mortgage loan at 8%. RRAP provided a forgiveable loan for rehabilitation which amounted initially to a maximum of $2,500 per unit and later $3,750 per unit. CSHP provided a front end loaded operating subsidy which was equivalent to a 10% capital contribution. In exchange, a minimum of 25% of the units were to be allocated for rent supplements. All of the scattered houses were rent supplemented in order to accommodate large low income families.

2.4 Renovation Work

The renovation program* for apartment buildings and scattered houses was decided between Cityhome and C.M.H.C. Although a working arrangement was eventually reached, the two agencies often differed significantly in their interpretation of the applicable codes and in their estimation of which work was most important. Essentially, C.M.H.C. was most concerned with bringing the buildings up to the standards of the National Building Code, thus achieving current standards of fire safety and ensuring that the mortgages were adequately secured. Cityhome, while recognizing the importance of safety, was also very concerned with livability.

While the National Building Code was applied by C.M.H.C., its "new building" standards were often impossible to meet and the N.B.C. does not specifically cover renovation. A guide book based on N.B.C. standards was available which provided a framework for the extent of work, but disagreements centred around the interpretation of "new building" standards. For example, C.M.H.C. required fire separation between units which, in Cityhome's view, was extremely expensive and of dubious value. Similarly, Cityhome felt that upgrading an electrical service from 60 to 100 amps was unnecessary. In essence, Cityhome believed that the units should be made safe but disagreed with C.M.H.C. on the level of improvement needed in order to achieve the desired degree of fire safety.

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* The word "renovation" is used throughout the Cityhome section to describe improvements to their acquired properties. In terms of our definitions, however, the work done on the small apartment buildings and on the early scattered houses and rooming houses might more properly be called "rehabilitation" while the more substantial work done on the later scattered houses and rooming houses and the groups of Victorian mansions is closer to "renovation".

Certain of C.M.H.C.'s other requirements were also considered unnecessary; e.g. the requirement for a second header on basement stairs and cosmetic drywalling within units. Conversely, Cityhome and tenants were more interested in elements of livability, such as ensuring an adequate water supply or painting the units.

Typically, the following work would be undertaken in an apartment unit. Wiring would be replaced as needed with the service upgraded in the kitchen. Fire separation would be installed between floors, and the building would receive smoke detectors, a new fire alarm system and fire doors if needed. New copper plumbing would be installed. Cracked plaster would be patched and some cosmetic drywall would be installed. New kitchen appliances would be supplied (although not out of the RRAP grant). Bathroom fixtures would be kept. There would be no structural work, no new windows (not even storm windows) and no soundproofing measures. Little insulation would be installed unless exterior walls or roofs were opened up for some other purpose.

The average 1975 renovation cost for the small apartment buildings was $1,827 per unit or $4.00 per square foot. This was 13% of the average purchase of $14,000 per unit.*

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* City of Toronto Housing Department, Housing Policy Review 1976, p. 115.

The Hydro Block and Dundas/Sherbourne, two rows of large Victorian houses, were converted into flats with 39 and 74 units respectively. This required gutting the buildings and undertaking a complete renovation. The 1976 renovation costs for Hydro Block amounted to $45,800 per unit or $22.90 per square foot. At Dundas/Sherbourne, the 1975 renovation cost was $29,200 per unit or $23.74 per square foot, almost twice the land and holding cost. Nevertheless this was 77% of the construction cost ($30.78 per sq. ft.) to build a new six-storey 302-unit apartment building in 1976 as part of the Dundas/Sherbourne project.[1]

With the scattered houses, the initial level of renovation was very low, normally involving the installation of attic fire separation plus some repairs and decorating. Since the fire separation cost about $1,000, the initial program consisted of little more than patching. In 1975, for example, 81 houses were upgraded at an average cost of $3,466 per house ($4.00/sq. ft.). This amounted to approximately 10% of the purchase price.[2]

The high maintenance costs of the scattered houses led to a change in policy, and later units were renovated much more substantially. This would consist of entirely new wiring, a new furnace, a new plumbing system, upgraded insulation and often a new roof and some structural improvements. The average renovation cost in 1977 was $6,500 per house or about 17% of the average purchase price of $38,000.[3] Some houses, particularly rooming houses, were completely gutted with an expenditure of between $15,000 and $20,000 per house.[1]

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[1] City of Toronto Housing Department, New Directions in Housing 1977, pp. 49-50.

[2] City of Toronto Housing Department, Housing Policy Review 1976, p. 115.

[3] City of Toronto Housing Department, On Target 1978, p. 21.

Such a substantial renovation was possible because there was often a considerable gap between the acquisition cost and the price ceiling established by the Assisted Home Ownership Program (AHOP). In addition, for the purposes of RRAP, the scattered houses were treated as one project permitting RRAP funds to be distributed with some flexibility. As acquisition costs crept up, however, such a budget was no longer possible and the house acquisition and renovation program was squeezed out. The last house was acquired in 1980.

Renovation of the small apartment buildings typically took about six months from acquisition to completion. Work took place within occupied buildings. Tenants were relocated within each building with the vacated units being renovated in small groups. Cityhome staff estimate that the juggling of tenants probably resulted in a doubling of the actual time needed for the renovation.

The process of renovating the scattered houses initially took 6-8 months. However, as Cityhome gained experience and the process became very routine, the time taken from vacant possession to occupancy was shortened to three months - two to undertake the repairs and one to rent the house.

2.5 Work Specification

Very few people in either C.M.H.C. or Cityhome were experienced in renovation. Initially both agencies tended to underestimate the amount of work required for the apartment renovations. Frequent surprises were uncovered, especially those which required new wiring and plumbing. This would often cause problems with C.M.H.C. because the mortgage instrument would already be in place and no easy provision for extras existed. As experience was gained, however, estimates became much more accurate and there were few problems with cost overruns.

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[1] Interview information.

The situation was somewhat different with scattered houses. Since acquisition costs tended to be substantially lower than the allowable price ceiling, the mortgage could usually be adjusted after final costs. Later, when some houses were gutted, estimates tended to be very accurate since most of the surprises had been ripped out.

About 90% of the renovation work undertaken by Cityhome did not require building permits - only plumbing or wiring permits which would be obtained by the trades. In the City of Toronto, building permits are only required for major renovations or for conversions. As a matter of policy, Cityhome tended to stay away from the type of work that would require a building permit. Even the duplexing of single family houses was avoided in order to stay away from a lengthy permit process complete with full drawings and sophisticated specifications. Nevertheless Cityhome would still have to obtain minor variances, especially with respect to parking. There were visits almost weekly to the City's Committee of Adjustment to request variances, a procedure which took about three months from application to ultimate decision.

A similar process for specifying the work to be done was used for each of the apartment buildings. The basic document was a written specification based on the C.M.H.C. appraisal. This specification was basically a room-by-room list of instructions.

Cityhome tried to stay away from drawings. Small not-to-scale sketch plans were used for Bain Avenue and Spruce Court while sketches of individual elements were used for five of the small apartment buildings. The remaining apartment building did have full drawings done in-house because of its complicated internal layout.

The nature of the work at Dundas/Sherbourne, Dundas/Beverley and the Hydro Block necessitated a much more complicated process. These projects had outside architects, building permits and full drawings and specifications.

2.6 Tendering and Contractors

Tenders were advertised in the Toronto newspapers and the Daily Commercial News with a bidding period of two to three weeks. Cityhome asked bidders to submit a fixed price. Unit prices were also requested in order that extras could be handled.

A couple of variations on the tendering process were tried but did not prove to be successful. For instance, Cityhome requested unit prices for specific tasks from general contractors without specifying which houses were in the package. Houses would subsequently be allocated to the various selected bidders. In responding to such a tender, however, a contractor might find himself seriously at risk since the condition of individual houses was usually unique even if there were common elements of work.

Between three and seven bids were received for each tender, usually from the same stable of contractors; after the first two years, there were very few new bidders. Contracts were always awarded to the low bidder unless he was overworked or Cityhome had had a bad experience with him. The low bidders were almost always self-employed individuals or small non-union firms. The unions protested this situation but they eventually surrendered in light of the fact that Cityhome was providing a much bigger amount of new construction which could be undertaken with union labour and the City's Fair Wage Policy always ensured reasonable payment to workers.

Since most of the bidders for the small apartment buildings and scattered houses were not bondable, Cityhome required some form of cash security such as a certified cheque, convertible bonds or Letter of Credit in an amount equal to 10% of the bid price. Cityhome never had to collect on this security.

The typical contractor for a small apartment renovation was an individual who set up an office on-site and was his own superintendent. All work would be subcontracted. Other buildings were renovated by small firms who tended to work virtually full time for Cityhome and maintained permanent work crews. For some of the contractors, it was their first experience in renovation work. Two firms, who eventually did about 40% of Cityhome's renovation work, grew out of the community activist movement.

Cityhome's first projects, Dundas/Sherbourne, Dundas/Beverley and the Hydro Block, were relatively substantial and attracted larger contractors. However, Cityhome felt that they proved to be inefficient and started splitting large projects into smaller components. In general, any advantages of scale gained from the use of larger contractors were lost because of the substantially reduced efficiency and unique "one off" quality of renovation work. Higher overheads, caused in part by the need to employ a site superintendent, also tended to make the larger contractors less competitive.

The scattered houses were tendered in packages of up to ten houses. Contractors would generally bid on up to four houses, giving a price for each house. Cityhome would try to award two or three houses to each of the selected bidders. Smaller firms were always used since no large general contractors could be competitive at the level of minimal renovation to small groups of scattered houses.

When houses were gutted, it was usually done under a separate contract. A more accurate description of the renovation work could then be written. This and the fact that contractors could work much more smoothly in a gutted house contributed to the efficiency of the process.

Contractors were required to submit progress reports and bill on a monthly basis. Payment would be made by Cityhome within thirty days with mortgage funds from C.M.H.C. It was critical to ensure an efficient payment process because small contractors could not survive cash flow problems.

The work was inspected by both C.M.H.C. and Cityhome. The inter-agency arguments about quantity and quality of work continued on-site.

In the first couple of years of the acquisition and renovation program, Cityhome reported that there were problems with achieving certain standards of workmanship, completing work on time or making workers return to finish a job. However, considerable effort was expended to attract contractors, and Cityhome eventually had a list of dependable people who could give competitive prices, meet their deadlines and do quality work.

2.7 Renovation Skills

Gutting a building was found to have definite merits because a much more accurate cost estimate of the work could be made. The organization of work becomes essentially the same as a new construction job with its concurrent benefit of increased efficiency. However, gutting is substantially more expensive than doing only the necessary repair work.

If a building was not to be gutted, Cityhome staff reported that certain planning and management skills became critical, particularly the ability to think ahead and to think innovatively. The work needed to be scheduled carefully and had to be closely supervised by a skilled person capable of dealing with a continually changing set of problems.

The technical trade skills required in renovation are generally the same as for new construction with some major exceptions. For example, an understanding of old building techniques and materials is essential so that a modicum of efficiency can be maintained and additional work is not created by replacing too much because it seems simpler than adapting "old" to "new". This is particularly true for the carpentry, plumbing and electrical trades.

2.8 Relationship with Tenants

As already indicated, the apartment buildings were renovated with tenants in place, a situation which lengthened the process considerably. Tenants were relocated temporarily or permanently within the building, and small groups of vacated units were renovated at one time. This method of renovating occupied buildings was inefficient but successful. There were often disputes between tenants, workmen and Cityhome.

Tenant groups were organized by Cityhome staff. It was found that the renovation process was a good initial impetus to establish tenant participation in the ongoing management of their building. The programs, financial constraints and physical processes were explained to tenants at meetings.

Disputes often arose over the extent of required work. The tenants tended to want the "surface" to look good while Cityhome, by regulation, was required to do work which could often not be seen such as new wiring or plumbing. The intricacies of the financial program were difficult to explain to tenants who never seemed to understand that there was not enough money for that "one little extra". Nevertheless three separate projects have been sold over the years to tenant co-operatives which cut their teeth on this process.

The legal liabilities associated with the renovation of occupied buildings gave the City Legal Department nightmares. If damage to personal tenant property did occur, a settlement was made immediately. Tenants were responsible for their own personal property insurance and were warned of their liabilities at the outset. Nevertheless the possibilities of damage suits against Cityhome were enormous. Luckily none ever materialized.

Over the course of the renovation process, tenants' attitudes tended to follow a pattern. At the beginning tenants were very positive towards the renovation and wanted a say in how the buildings would be renovated. As the work proceeded, tenants became increasingly unhappy because of the disruption, the inevitable delays and the disagreements with Cityhome over the nature and extent of the work.

In the scattered house program, Cityhome always insisted on vacant possession. With the rooming houses, tenants were initially moved from unit to unit. As the level of renovation increased, it became more and more difficult to maintain services and work around tenants, leading Cityhome to conclude eventually that the two were incompatible.

2.9 Project Coordination and Administration

Cityhome's remarkable record of achievement in the acquisition and renovation program was partly due to the lack of a bureaucratic organization. Each of the handful of project coordinators had complete responsibility over a group of properties. The project coordinator's role included appraisals, dealing with C.M.H.C., administrative work and overseeing the actual renovation. They were called upon to make continual decisions about the renovation work which necessitated site visits to the apartment buildings on almost a daily basis and to a single family house once or twice a week. The project coordinators generally had architectural backgrounds, and this technical expertise was found to be a great advantage.

The acquisition and renovation program also required an enormous amount of administrative work. The amount of paperwork for one house, for example, was as great as for a large apartment building. To overcome this, all the houses were treated as one project for budgeting purposes. However, such packaging wasn't always possible; for example, each house had its own mortgage.

The amount of paperwork required by both C.M.H.C. and Cityhome also constituted a major problem for the small and relatively unsophisticated contractors. They were used to being casual in their contractual relationships with little desire or ability to push paper. It was necessary for Cityhome staff to guide them through the administrative procedures, another major time consumer.

2.10 Long Term Assessment

Cityhome now feels that too little money was spent to renovate the apartment buildings and early houses. While the money was well spent, given the budget, the work did not usually extend the life of the building or affect operating costs. One project coordinator, who was in charge of some of the apartment renovations, indicated that the installation of a new heating system and storm windows, for instance, would have reduced operating costs significantly. However, the subsidy program was based on the capital costs of the project and every effort was therefore made to contain these costs, often at the expense of the later operators.

At the present time Cityhome has no formal process of life cycle costing or budgetary analysis although an allocation for maintenance is included in the building rent. Planning work is now underway on the development of a 15-year enhanced maintenance program but there is no indication yet as to whether it will be implemented. Cityhome has backed off from doing further renovation work on the apartment buildings because of lack of funds and tenant hostility towards rent increases.

A very good illustration of the consequences of too little work is 102 Tyndall Avenue - a 24-unit, four-storey, masonry building with a wood floor system.* It was assessed in 1974 by engineering consultants who reported that the heating system needed $1,000 of improvements and the other systems were in "reasonably good condition." Cityhome acquired the building in 1975 for $343,000 or just over $14,000 per unit. This was considered a very good deal since the building consisted almost entirely of large two and three-bedroom units, some of which were over 1,000 square feet and had fireplaces.

The renovation work undertaken on the building was aimed at fire safety and some basic repairs. Exterior work involved painting, some repointing and repairing roof leaks. General interior work consisted of a fire alarm system, fire doors and horizontal fire separation between units. In the apartments themselves, the walls were painted and patched as needed and some new bathroom units and electrical outlets were installed. Other interior repairs were very minimal; for example, a new counter top might be installed but the existing sink kept. The cost of the work was $130,000 or an average of $5,400 per unit, well over the RRAP ceiling of $3,750.

By 1978, 102 Tyndall Avenue had an operating deficit of $28,700 per year. Since acquisition there had been recurring problems with the water supply. An electrical inspection in 1980 uncovered a myriad of problems and unsafe conditions. In terms of fire hazard, the building was reported to be extremely dangerous. A City work order required that the building be completely rewired, which was done at a cost of $100,000.

Cityhome considered selling the building; however, its market value in 1980 was estimated to be $400,000 while the value of the mortgage was $421,000. In addition, redevelopment of the site would be very difficult because of zoning controls.

An in-house report was prepared in 1981 outlining three alternative strategies for 102 Tyndall Avenue.

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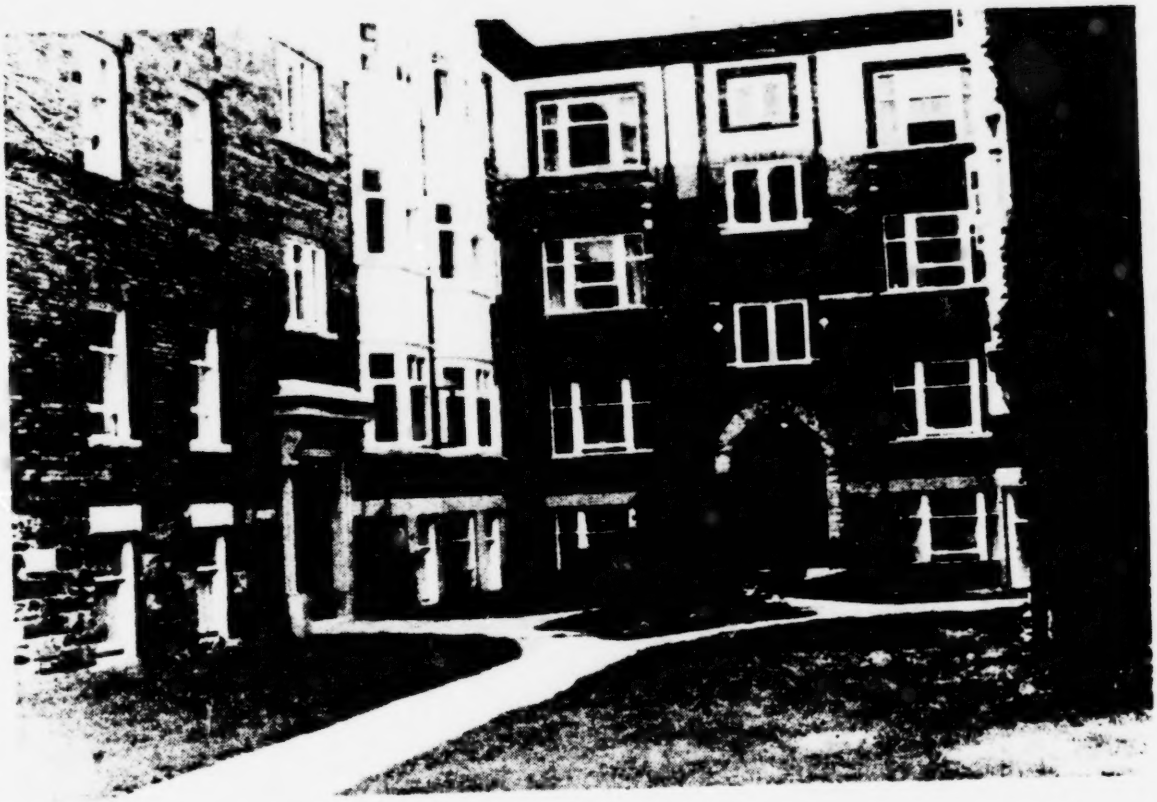
* Statistical information on 102 Tyndall Avenue is from Cityhome files.



102 Tyndall Avenue

Strategy	Cost	Per Sq.M.	Per Sq.Ft.
Repair existing structure	$357,375	$125	$11.62
Full renovation	920,598	322	29.93
New construction	2,025,980	430	40.00

None of the above strategies was adopted because of lack of funds. RRAP can only be used once, and tenants were also very resistant to the idea of a rent increase. In August 1981, Cityhome adopted a much more reduced budget of $99,000 which focussed on energy conservation measures but did not attend to the inadequate electrical supply, aged plumbing fixtures, galvanized pipes or lack of insulation.

The situation today is somewhat of a stand-off and illustrates well the differing perceptions of the public agency and its tenants. Renovation work on the building to date has cost more than twice the RRAP limit. Yet operating costs have not been reduced and the life of the building has not been extended. Heat loss is tremendous, and other serious problems remain unattended. On the other hand, the building is very popular with tenants and has a low turnover. The apartments are spacious, the building has distinctive architectural features which are liked by tenants, the superintendents have been very good, and rents are well below the rest of the neighbourhood.

Another example is 3 Laxton Avenue, which was also renovated using RRAP funds in the mid-1970s*. This is an eight-storey, concrete-frame elevator building constructed in the 1950's. Almost all of its 42 units have two bedrooms.

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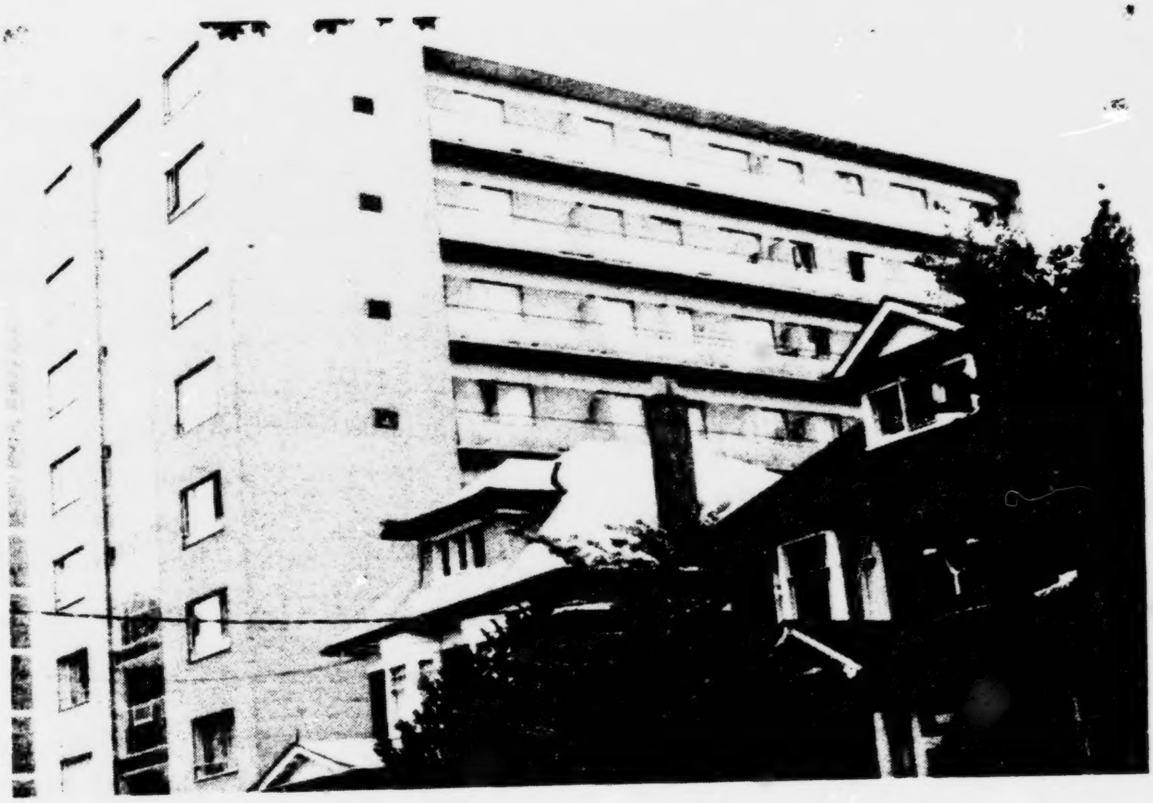
* Statistical information on Laxton Avenue is from Cityhome files.



3 Laxton Avenue

As a result of high operating costs, an in-house assessment was carried out in 1981. The building was found to be structurally sound and in good general condition. However, the report recommended a number of improvements, estimated at $136,000 or $3,200 per unit.

Energy conservation was identified as the key issue, and the report recommended installing second windows and balcony doors, replacing the roof adding new insulation, servicing the heating system and installing furnace control devices. At an estimated cost of $77,500, these measures would constitute almost 60% of the total renovation cost. However, the report indicated that energy costs savings of 30% per year could be expected.

The report also stated that water was leaking onto the parking deck causing damage to the parking structure. This finding is especially interesting, since the problem of water draining onto concrete parking garages and combining with salt to cause corrosion has only recently come to light as being widespread in post-war high rise buildings. The report recommended that the deck surface on the Laxton Avenue building be waterproofed and repaved at a total cost of $5,000.

The remainder of the recommended work consisted of repairing worn-out components·or servicing the systems. The most expensive was a new elevator at $15,000; the others were relatively minor and involved such work as replacing glass panels in balcony railings or servicing the drains.

The building superintendent has indicated that the building is popular, turnover is low, and rents could likely be increased. As of May 1983, funds had not yet been found to carry out the improvements, and the matter is currently in limbo.

3

3. WINNIPEG HOUSING REHABILITATION CORPORATION

The Winnipeg Housing Rehabilitation Corporation was established by City Council in 1978 in response to an offer of funding from the provincial government but remained inactive until 1980 because of fears about the liability of the City assuming a major rehabilitation role. Since 1980 W.H.R.C. has renovated six houses (singles, duplexes and triplexes) and one 20-unit building. The intention for the future is to focus on small apartment projects. While W.H.R.C.'s renovation experience from its inception in 1978 to the end of 1982 has not been huge, it does illustrate some of the growing pains that might befall any public agency attempting to establish a renovation program which addresses a multiplicity of social, economic and safety concerns.

The City, when it decided to resuscitate the Corporation in 1980, sold to it nine houses on the understanding that the value of the properties be recaptured upon resale. The basic mandate of W.H.R.C. was to increase the supply of housing to lower and middle income households and arrest the decline of the inner city stock. The City was worried about decline in the central core with some 450 houses boarded up and abandoned and very little middle class resurgence into the area.

To activate the program, the City provided capital funding of $90,000 towards the acquisition and renovation of properties over five years. The City also provided $20,000 towards operating expenses, an amount which was matched by the Province. Losses have mainly occurred on the operating side.

The original intention was to have a program balanced between the sale of some renovated units and the rental of others. The requirement to sell some of the houses was included by those on the Council who were worried about the

City increasingly assuming the role of landlord. In any event, the concept of a balanced program was not realized, particularly with respect to the ability to renovate and sell a unit at a price competitive with ones already on the market. Typically, one could buy a house in downtown Winnipeg for about $20,000. Improvements amounting to $10,000-$15,000 would bring the subsequent sale price to at or above the market value for housing of a similar quality in the area. Further, the above amounts make no allowance for profit, soft costs, administrative costs or sales commissions.

The first package of nine houses proved to be largely unworkable, a situation which might have been avoided had there been an adequate inspection of their problems and potential prior to acquisition. Five of the units have been renovated, two have been handed back to the City, and no decisions have been made with respect to the other two. Of the five that have been renovated, only one has been sold and the other four have been rented.

W.H.R.C. has now essentially abandoned the sales option since they cannot compete with home-ownership programs or with other existing accommodation prices. They also feel that there is an acute need for rental housing and that the stock should not be sold. Their recent experience has made them aware that a decision whether to sell or rent must be made in advance of renovation, since there are essentially two different renovation programs, dependent upon the disposal of the unit.

In undertaking these first projects, W.H.R.C. found itself somewhat squeezed between the expectations and regulations of the City and those of C.M.H.C. For example, the City had wanted W.H.R.C. to take on buildings in very poor condition as part of a revitalization strategy for the downtown yet be able to recapture all costs at the time of resale. There were also problems with meeting city codes and regulations, particularly with respect to fire safety, number of parking spaces and play space requirements. Similarly, C.M.H.C. refused to compromise on fire and safety standards and in fact have expressed general reservations about the viability of renovating wood frame apartment buildings in terms of fire safety. The potential for achieving a significant degree of energy efficiency is also seen as a serious problem in older apartment buildings.

As time progressed, C.M.H.C. and W.H.R.C. slowly evolved a working relationship. In general, C.M.H.C. acted as a watchdog over fire and safety while W.H.R.C. was responsible for design features. A guideline was also established whereby C.M.H.C. would not approve an acquisition if the renovation costs would exceed 70% of the replacement cost (as determined using the Southam Building Report). It was intended that this standard would ensure a realistic approach to acquisition and renovation and would comply with the best-buy principle required under the federal non-profit program. Application of the standard did cause some problems for W.H.R.C. since the replacement cost would be based on C.M.H.C. minimum areas for new accommodation while the shell of the existing building would normally be larger than that which would be built today. At the present time, however, W.H.R.C. is eligible for and has received considerable support from the Core Area Initiatives program, thus offsetting constraints imposed by the 70% guideline.

After completing the house renovations, W.H.R.C. decided to acquire a small apartment building for renovation. They concluded that the administration costs of single, duplex and triplex renovations were too high and that their commitment from C.M.H.C. under Section 56.1 of the program would not be attained unless they moved to larger multiple-unit buildings. At the same time Winnipeg was experiencing a significant abandonment of apartments with some 400 units having been removed from the downtown market in recent years. Also, the landlord RRAP program had not been very successful for apartment renovation principally because C.M.H.C. requires adherence to its Residential Standards and the City requires adherence to its Existing Residential Building Upgrade By-law. Application of these standards to older buildings is not always practical.

W.H.R.C. obtained a list of vacant apartment units from the City and on the basis of location, level of vacancy, structural soundness and price, a 20-unit building was acquired. This building, which was bought for $6,700 per unit, had the capacity for extra units and a commercial area to be added. C.M.H.C. was involved prior to acquisition. A formal renovation proposal was made to C.M.H.C. who had established a ceiling of $30,000 per unit. An architect was not used although a drafting service was brought in for a fee of 2% of the total construction cost.

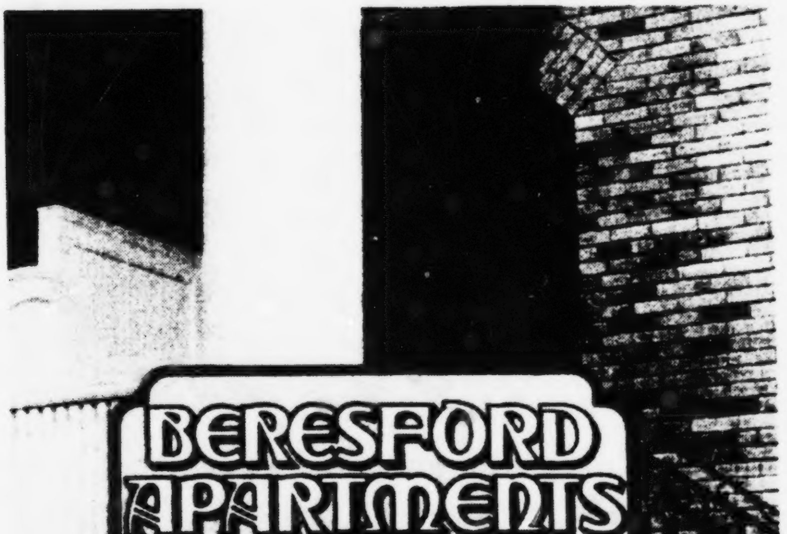
The renovation program focussed on the replacement of certain major building systems. In particular, the poor heating distribution system had caused substantial water damage to the apartments and the lack of a vapour barrier had resulted in moisture damage to the window lintels. Party walls were generally left intact but unit layouts were altered quite radically in order to meet NHA standards.

W.H.R.C. again acted as its own contractor and publicly tendered the individual trades. There was a heavy level of bidding with several of the bids encompassing several trades.

At this point C.M.H.C., which had not yet given formal approval to the plans, insisted on a redesign and withdrew support for the project. C.M.H.C. had made this decision based on the first drawing review and the fact that the plans did not meet NHA requirements. W.H.R.C. then altered the design based on recommendations from the C.M.H.C. Regional Architect. The project was retendered with the original three lowest bidders, and prices came in even better after the redesign process.

In general, W.H.R.C. felt that senior staff at C.M.H.C. had been very cooperative. The main complaint was a dissatisfaction with the overall timing and administrative procedures of C.M.H.C., which did not always match the timetable preferred by W.H.R.C.

W.H.R.C. is now fully established and a recent commitment for 75 new units has been expended in the acquisition of three buildings. The Corporation will also be undertaking the construction of 39 new units as part of its 1984 commitment for between 75 and 100 apartment units. The main problem is finding sufficient funds to support the administration and operating expenses. It is hoped, however, to be able to support those costs by using RRAP and Core Area Initiative moneys.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4. PRIVATE RENOVATION EXPERIENCE

In order to gain a picture of the large scale renovation process from a private perspective, thirteen interviews were conducted with people who had had experience with renovating small, older apartment buildings in Toronto. This chapter presents the results of those interviews along with a description of our methodology, a profile of the renovators interviewed and their buildings, and a short discussion on the representativeness of our sample.

An important component of this chapter are descriptions of the renovation process for two case study buildings which were chosen for their general applicability. One was bought and renovated by a "spec" renovator who then sold it to a property management company. The other was bought and renovated by a property owner/manager who has continued to own it. One was built in 1910 and the other in 1951. Both are low-rise rental buildings, and neither is aimed at the top of the market. The most important reason for choosing these buildings, however, is that their renovators have had many years' experience, and the benefit of that experience is particularly valuable in an industry dominated by newcomers.

4.1 Methodology

We began with an address list of 45 buildings, provided by the City of Toronto Planning and Development Department and containing buildings that had recently been completed or were now being renovated as part of a conversion to condominium, cooperative or luxury rental use. The buildings on this list fell naturally into several sub-areas within the city. These areas were canvassed and more buildings identified, resulting in a final list of over 60 buildings.

Using the City of Toronto's computer files, data sheets were drawn up for each building, containing such information as the owner's name and address, the record of building permit applications, the record of sales and the building's physical characteristics. Thirty buildings were then shortlisted; to ensure maximum comparability, buildings were selected where there were at least ten units, the building permits were issued within the last five years, and the renovations were substantial. Buildings that were former single-family mansions were eliminated along with buildings that were converted to a very specialized residential use such as hotel or nursing home. To ensure maximum applicability to the apartment stock across Canada, pre-1900 buildings were also eliminated.

Although the final list of 30 buildings did not constitute a statistically valid sample, some interesting observations can nevertheless be made. For example, by far the largest single group of renovators were those that had bought a building and renovated it immediately. Of this group, some sold shortly after and others continued as landlord. There were only a few instances where long-time owners renovated their buildings. In addition, most of the buildings dated from 1900-1930; only a few 1950's buildings and no 1960's buildings were on the list.

Building owners were contacted and interviews conducted with any of the owners or their representatives who agreed to talk to us. The result was eleven interviews.

In an effort to locate more apartment renovators, we contacted the Renovator's Council of the Toronto Home Builders' Association. This is an organization of approximately 60 professional renovators. In general, their experience is limited to single-family housing although a few members have done buildings of up to six or eight units. It was indicated to us that only one member had renovated an apartment building; he was contacted and an interview granted.

We also telephoned a sample of ten contractors. One had had experience with apartment renovations and agreed to talk to us.

The final result therefore was thirteen interviews.

4.2 The Interviews

The thirteen loosely-structured interviews focussed on eleven buildings. People were asked to describe the process that had been followed in renovating a particular building. We felt that renovators would be unwilling to respond to a detailed questionnaire and did not adopt this approach. Nevertheless, a lengthy list of questions was drawn up for use as a guide by the interviewer (provided in Appendix A). The questionnaire was divided into several major areas of concern, and it was our intention that these should be addressed during the interview. Interviews generally lasted one to two hours, and despite the interviewees' generosity with their time, we were never able to cover every point on our questionnaire.

We interviewed:

- 5 real estate brokers (3 spec renovators, 1 sales agent representing the owners, 1 who regarded the building as a long-term personal investment)
- 2 full time spec renovators (1 had only renovated houses before, 1 had renovated mainly commercial buildings)
- 1 owner of a property management company who has bought and renovated several buildings
- 2 architects

- 1 president of a housinq cooperative
- 1 person who had been hired to relocate tenants
- 1 contractor

The list illustrates the diversity of people involved in renovation. Real estate brokers are probably over-represented, but the nature of the business also makes them the most accessible.

In the interviews, information was collected in accordance with a number of general themes, including:

(1) the interviewee's role in renovating the building and the extent of his experience,
(2) factors influencing the decision to renovate,
(3) the undertaking of feasibility analyses,
(4) estimates of work and costs,
(5) financing,
(6) use of architects and contractors,
(7) the extent of the work,
(8) project managment,
(9) relationship with tenants,
(10) relationship with government, and
(11) the potential for a renovation industry.

4.3 Profile of Buildings

The eleven buildings consisted of three condominium conversions, one cooperative building and seven rental buildings - two that were sold by the renovators ("flipped"), one currently for sale and four where the renovators retained ownership. All but one of the buildings were bought with renovation in mind.

PROFILE OF BUILDINGS AND RESPONDENTS

Respondent	Developer for Building	Building Age	# of units	# of floors	Use After Renovation	Building Sold?
Spec Renovator	yes	1910	26	3	Rental	yes
Spec Renovator	yes	1957	25	6	Condo	yes
Property owner & his architect	yes	1911	32	4	Rental	no
		1951	29	3	Rental	no
Architect	no	1925	60[1]	3	Rental	no
Co-op President	no	1929	18	3	Co-op	no
Real Estate Broker	yes	1929	16	4	Rental	no
Real Estate Broker	yes	1911	47	3	Rental	yes
Real Estate Broker	yes	1955	25[2]	3	Condo	yes
Real Estate Broker & tenant relocator	yes	1910	17[3]	4	Condo	yes
	yes	1926	39	3	Project Stalled[4]	
Sales Agent	no	1918	10	3	Rental	yes

1. Reduced to 30 units after renovation
2. Reduced to 10 units after condominium conversion
3. Reduced to 11 units after condominium conversion
4. Building is currently vacant pending rezoning

Eight were built between 1900 and 1930, two are walk-up buildings from the 1950's and one is a six-storey 1950's elevator building. All, with the exception of the elevator building, are either three or four storeys. The average number of units is 26.

4.4 Findings

(1) The apartment renovators interviewed fell into two groups. A typical member of the first group would be a real estate agent who had been in business about three years. He or she had had some experience renovating single family houses or perhaps a six-plex and had decided to move on to apartment buildings. This was his or her first apartment renovation.

Members of the second group had been in some aspect of the property business for 20-40 years. While most had only renovated one or two apartment buildings, their base of experience was considerable. One had been renovating single-family houses for thirty years. Two had carried out a number of large-scale non-residential renovations. One, who had renovated eight apartment buildings, had been in the property management business for 35 years. The firms in this group contained 2-3 people and typically were family operations such as father and son.

None of the people interviewed were builders.

(2) All but one of the buildings had been bought with the intention to renovate.

(3) The suitability of a particular building for renovation is determined in the context of its eventual

marketability. Location is consistently cited as the most important factor. Other factors are inexpensiveness and structural soundness. In addition, if the building is to be renovated without changing unit sizes, relatively large unit areas are necessary since post-renovation rents will be high.

(4) In general, initial financial appraisals are done by the developers themselves, usually "on the back of a cigarette box in twenty minutes". Speed is mandatory. Most pointed out the accuracy of these estimates, which rely on experience and rules of thumb. The importance of experience cannot be overemphasized here; one renovator, whose only previous experience was a single family house, erred significantly both in predicting the eventual market for the units and in assessing the building's physical condition.

Not all, however, acted intuitively. The co-op and one of the other developers used private consultants (accountant and/or architect) for the initial financial appraisal.

(5) Two developers mentioned that a site's zoning designation could make renovation a more lucrative option than redevelopment since most older apartment buildings were built at much higher densities than would be permitted today. This is exemplified in the case of a 25-unit rental building that was converted into a 10-unit condominium building; if the site were to be redeveloped, the current zoning designation would permit three detached residences. The difference in selling prices for the two options would be over $2 million.

(6) Rent control is a major inducement to renovate. While the rent review process allows developers to recapture any increases in operating costs, most view renovation as a

"new investment opportunity". The object is to undertake repairs that are sufficiently "major" that entirely new rent levels can be set and the developer will have both a better building and a better return on his investment. In fact, one developer, who has a large portfolio of older walk-up buildings, indicated that it would not be profitable for him to buy a building and not renovate it.

High maintenance costs are another factor influencing an owner to renovate. Although most of the developers interviewed had bought with renovation in mind, several mentioned the problem of constant maintenance, and one developer said that maintenance costs could easily overtake operating revenues.

Also, some of the problems common in 50-year old apartment buildings cannot be remedied by enhanced maintenance alone. The failure of water and heating systems, for example, is a common situation but their replacement could require work so substantial that a more complete renovation may be warranted.

Finally, some of the developers indicated that when they bought old, cheap, run-down buildings, they inherited "problem" tenants. The new owners were both ill-prepared and unwilling to cope with their new tenants.

(7) The developers used interim construction financing for their renovations and then a permanent mortgage once the work was completed and approved. Those who had been in the property business for years generally indicated that they had a dependable source of financing. However, the reluctance of lenders to finance renovation was mentioned as a general problem. Another major concern was interest rate instability; several of the unsuccessful renovators attributed their failure to being caught in the spiralling interest rates of 1982.

(8) Half the developers used architects to design the renovations, prepare work and cost estimates, obtain permits, etc. The other half used architects or draftsmen only to draw up plans and working drawings.

(9) Almost all the apartment renovators were their own general contractors. Most indicated they would lose money otherwise. In fact, in only two cases were contracts let for the work. One of the building owners awarded the work directly to a contractor on a cost-plus basis; this type of contract was felt to be necessary because of the possibility of problems, changes and delays. The co-op, on the other hand, tendered a fixed-sum contract.

(10) Eight of the eleven renovated buildings were completely gutted, although it was generally considered expensive to do so. In terms of the advisability of gutting, there were two camps of opinion.

One group strongly favoured gutting a building in all cases. This group stressed the elimination of surprises and the fact that the final product was really a new building. One indicated that gutting also implied that the work could be undertaken with the kind of scheduling and procedures used in new construction.

A second group felt that gutting was not always necessary but depended on an assessment of the building's condition or the type of work needed to attract a particular market. One developer, who normally leaves as much of the walls as possible, decided to gut because of crumbling plaster. Similarly, it makes sense to gut if the work calls for the complete replacement of services or the reconfiguration of apartment layouts in order to satisfy modern expectations or simply if the building is fifty years old.

(11) It was often pointed out that a completely renovated building should more properly be viewed as a new building. For example, everything in one building was new except the "walls, floors and some marble stairs". In another all that remained was "a shell of concrete blocks". Besides being completely new, the renovated units may also be larger than before and have new internal layouts.

Installing a new electric heating system in a gutted building with each apartment metered individually was a popular option since it would relieve landlords from absorbing open-ended heating costs. Two installed such systems and a third abandoned the idea rather than wait several months for a transformer. All three agreed that obstacles to such a conversion were the long waiting period, the need for a large space to put the transformer and the complete lack of interest on the part of the hydro-electric utilities who would be faced with reading multiple meters.

In buildings that weren't gutted, the work typically involved repairing the plumbing, heating and electrical systems as needed, modernizing kitchens and bathrooms, removing some of the interior partitions or adding new windows to "open up" and brighten the units, installing fire-rated doors and smoke detectors as required by the Fire Department, blowing insulation into the roof and installing either storm or completely new double-glazed windows.

(12) Good site supervision was considered by all interviewed to be an essential ingredient to success in

renovation. In fact, there were several mentions of the need for "constant" supervision. In some cases, a skilled foreman supervised the work with the owner making daily site visits. In other cases, the owner acted both as project manager and site supervisor, requiring a very heavy investment of time.

In general, the need for daily decision-making means that owners must have a direct and on-going involvement in the project. This was true even in the two cases where general contractors were employed.

(13) Renovation carries a particularly high risk of unforeseen delays and the need to carry out extra work following the uncovering of surprises. While everyone recognized this risk, no one cited cost overruns as a significant problem. Most indicated that they had stayed within their budgets; this was generally attributed to the accuracy of the original estimates and experience. Another said that renovation always costs more than expected but was not willing to sacrifice the quality of the work; he did not consider such overruns to be a major problem.

(14) It was generally agreed that renovation required more highly skilled work than that needed for new construction. Workers must be able to act innovatively and treat situations individually. There is also a demand for specialized skills such as fine woodworking. New construction, on the other hand, is characterized by its speed, simplicity and replicability.

(15) All agreed that small companies are best suited to renovation work. Their overhead is lower and the small number

of people ensures good communication within the firm. Small firms can also provide the immediate on-site decision-making necessary without being encumbered by a hierarchy of decision-makers.

(16) No one would consider renovating a building with tenants in place. The suggestion elicited immediate comments about noise, dirt, lack of walls, live wires, etc.

(17) The potentially lengthy and difficult process of tenant eviction was overcome by most owners by offering either assistance or inducements. Several indicated that they helped tenants find new accommodation and/or paid moving expenses. Assistance was offered especially to the elderly, many of whom had been long-term residents. Some owners also gave money or gifts. The potential for difficulties was also considerably reduced in many cases because the need for renovation was obvious.

One developer hired a person for four months specifically to help tenants find new accommodation. At first tenants were apprehensive, but after a few found new apartments that they liked and spread the word to others, many more people came to her. The work involved finding out what people wanted, locating new apartments, taking the tenants to view the apartments, etc. The work even extended to arranging to have the new apartment painted if the work was not going to be done by the new landlord. Many of the tenants were elderly, and great care was taken with them. People usually moved to similar apartments and were generally satisfied with their new accommodation. In the end, the "relocator" helped 90% of the tenants find new apartments.

The effort was a success all round. Tenants liked it, and they respected the developer because he had hired someone whose sole responsibility was to help them. The developer saved both time and money. And the "relocator" had a job which she both enjoyed and considered challenging.

The "relocator" indicated that there was a huge market for this type of work. After completing the job, she found herself very much in demand and is currently working for another developer in a similar capacity. However, she cautioned that such a relocation scheme must be implemented right from the start and will only work if tenants haven't been offered money.

(18) The City of Toronto's approval process was viewed as the single greatest stumbling block in renovation. Virtually everyone complained of unnecessary red tape and costly delays. The same complaints were voiced repeatedly.

- The process is too long; one can expect 1-2 years for a rezoning, 2-3 months for either a building permit or permission to alter the building permit and 1-2 months for a minor change.

- There is no streamlined process to deal with renovation where relatively small changes made in the middle of a job are common, whether they be brought about by unforeseen "surprises" or the directives of a building or fire inspector. Thus the renovator may be required to go back to City Hall many times for approval.

- The City is inflexible in the application of regulations although they were established to control new development and not renovation.

- Building inspectors have considerable discretion but are not qualified to exercise judgement.

- There is a lack of coordination and agreement between the Buildings Department, the Planning Department and the Fire Department.

(19) The acquisition and renovation of older apartment buildings can cost as much or more as new construction. In the Toronto market, renovation costs alone can be expected to equal at least the price paid for the building.

While most developers will not reveal any financial details, some observations can be put forth tentatively. A relatively substantial renovation for rental will cost at least $20-25 per square foot. A luxury renovation for a condominium conversion, for example, can cost over $70 per square foot.

(20) Those that had had extensive experience with single-family renovation indicated that apartment renovation was cheaper and that economies of scale could definitely be realized.

(21) In terms of the economic success of the various buildings, the parties surveyed offered only the most general of information. Half indicated either that they had lost money or that the projects were less successful than anticipated. This was particularly true with the condominium conversions. By the time the projects were completed, the market had disappeared. Others were caught by the rapid rise in interest rates in 1982.

The remaining half regarded their projects as successful. Although market rents do not appear to provide a very good return on investment at the present time, these people view property as a long-term investment. Another said that property was "a way of holding money, not making it".

(22) All of those with successful projects said they would continue to renovate apartment buildings. One of the unsuccessful renovators said she might consider another building if it were a joint venture. The remainder said they would consider only non-residential renovation projects.

4.5 Case Study Building No. 1

This is a 35-unit, three-storey building constructed in 1951. It is situated in a stable middle class area with excellent access to shopping facilities and the Toronto subway system. It was bought in 1981 by Mr. D., the owner of a small property management company. Renovation was carried out during a seven-month period in 1982, and Mr. D. will continue to own the building.

The company is small, being comprised of Mr. D., his son and a handfull of secretarial and administrative staff. Mr. D. has been in the property management business since the late 1940's. They began renovating five years ago and are currently working on their eighth building. Seven were bought with the specific intention of renovation. They have owned the eighth building for a number of years and decided to renovate it in the face of increasing maintenance costs.

The renovation process for the case study building (their seventh building) took two years from initial viewing to rent up.

1981	June/July	Viewed building
	August	Purchase
	Sept/Oct	Architectural design work
	November	Building permit application
1982	January 29	Building permit issued
	February 1	Eviction notice to tenants - 120 days
	Feb/May	Tenants moved out
	June	Renovation work began
	July 19	Building permit alteration requested
	Sept 21	Committee of Adjustment hearing
	Sept 30	Committee of Adjustment decision
1983	January	Work completed
	April	All units rented

Mr. D. was first attracted to this building because of its very desirable location and the large size of its units. Prior to purchase, feasibility analyses were prepared by the company's architect and accountant.

After buying the building, the company's architect carried out the design work and prepared a detailed estimate of work and cost. The same architect has been involved in all the buildings and a working relationship has been established. Mr. D. stressed that an architect has a valuable role to play throughout the entire process - initial design work, preparation of drawings for the building permit application, design revisions as necessary during the construction phase, and most important, administrative work acting as a liaison between City Hall, various building and fire inspectors and the building owners.

The budget for the building was established by the cost of the work rather than by future rent levels. Property is viewed as a long-term investment, and Mr. D. is willing to accept a cash flow deficit for a number of years. A high standard of

Case Study Building No. 1

work was maintained because Mr. D. will continue to own and manage the building. It was stated that their renovation work always went over budget; in response, some of the architectural features might be trimmed but not the quality of the work or materials.

Mr. D. indicated that he could rely on good financing from a dependable source, a situation which he attributed to his long experience in the property business. He uses interim financing with a long-term mortgage.

Mr. D. is his own general contractor and feels that the firm would lose money if an outside contractor was used. Instead much of the work is done by a small crew who are kept permanently employed on a steady stream of buildings. At the head of the team is a skilled foreman who has been working for Mr. D. for many years. Other work is sub-contracted; as a long-time property manager, Mr. D. has built up many contacts in the trades. Mr. D. is principally responsible for the financial and administrative aspects of the business while his son takes care of the physical aspects of the renovation work, making daily site visits and functioning as the project manager.

The case study building was almost completely gutted although walls were left wherever possible. The renovation work was substantial. The building was completely rewired by taking out the old wire and "fishing" new wire through the walls, a task requiring patience and skill. Heating pipes and rotten beams were replaced as needed. Fire-rated doors and smoke detectors were installed in accordance with the Fire Code. Insulation was blown into the roof, and storm windows were put on over the existing windows.

There were few modifications to the layout of the units. Kitchens and bathrooms were left in the same locations in order to use existing stacks. The kitchens were completely redone; in the bathrooms, however, as much as possible was saved since tenants prefer old tile and fixtures. Elsewhere the suites were opened up somewhat, thereby replacing a series of small, dark rooms with spaces that were brighter and more spacious.

The uncovering of surprises is considered an inevitable part of renovation work. In the case study building, for example, it was intended originally to retain the heating pipes. However, they were found to be leaking, and since they were located within concrete, their replacement turned out to be very costly. When Mr. D. first became involved in renovation, he felt that the cost estimates were very high. But experience has since shown that unanticipated repairs are integral to renovation and extra costs should be expected.

As a general rule, Mr. D. does not gut buildings because of the cost. None of his seven completed buildings have been entirely gutted. On his current project, however, a decision was made to rip out the walls on the 70-year old building because the plaster crumbled when touched. Unfortunately, renovation work is still underway on this building so there has not yet been an opportunity to assess the merits of one approach over another.

At the case study building, the ground floor space was rented to three doctors who maintained their offices throughout the entire process. This caused delays and was both difficult for the renovators and unpleasant for the doctors. While a repeat of the experience would tend to be avoided in future, it was nevertheless considered as something that could be tolerated.

Working around residential tenants was not considered to be viable. Even though the building was not gutted, services were shut down and the work undertaken was substantial.

Assistance in relocating was offered to older tenants and those in need. This normally meant an apartment in one of Mr. D.'s other buildings. Some tenants moved back after the renovation.

In terms of problems, City Hall was considered to be the major obstacle to renovation. With the case study building, delays were caused by a time-consuming approvals process that wasn't set up to handle the surprises and changes common in renovation and by the lack of agreement and amount of discretion among the various inspectors as to how code requirements should be interpreted. The initial building permit involved a 2 1/2 month wait between application and issuance. Later, at the suggestion of a City building inspector, a change was made to one of the fire safety features; this entailed going through the entire process again in order to obtain approval for the change - another 2 1/2 months. When the work was nearing completion, a Fire Department inspection necessitated another trip to City Hall to obtain approval for a minor change to the change. This delay, although only six weeks, was particularly costly since the long-term lender would not provide a mortgage until the building had been approved. In all, Mr. D. was given three different assessments of how to handle a single problem by two building inspectors and one fire inspector.

As a final word, Mr. D. and his son became involved in apartment renovation in order to expand their building portfolio in a way that would yield an acceptable return on investment. After six years' experience, it is their intention to continue. Renovation has been added to their property management activities and has become a large part of what they do for a living. This is a somewhat obvious observation but it is an important factor in their success since their work is characterized by a long-term perspective and such unquantifiable factors as taking pride in one's work and the desire to maintain and build a solid family business. Their long-term commitment is also translated into a greater concern for quality than is often found in renovation work. In a field such as real estate, which often seems to be fired by speculation and the hope of an easy dollar, the experience of Mr. D. and his son can provide valuable advice.

4.6 Case Study Building No. 2

This is a 26-unit, three-storey building constructed in 1910. It is situated in an ethnically diverse neighbourhood that has experienced little "gentrification". The area is near an older industrial zone and is one of Toronto's least expensive neighbourhoods. The case study building was bought vacant and partially renovated in 1979 by Mr. G., who completed the work and sold the building early in 1981.

Mr. G. is an experienced builder and renovator of single-family houses who has been in the business for over thirty years. The business consists of Mr. G., his son and a partner. Outside trades are hired when necessary. The business began after World War II by converting single-family houses into duplexes. The case study building is the first apartment renovation Mr. G. has undertaken.

The following schedule outlines the renovation process. The time period between original purchase and final sale was two years.

1979	March	Viewed building but decided not to buy; bought by someone else
	May 14	Building permit issued to original buyer
1980	March 12	Bought building - vacant and partially renovated
	June	Renovation work completed
	July	Began renting units
1981	Jan. 15	Sold building

Mr. G. originally saw the building in 1979, about one year before finally buying it. It was very run down and in need of extensive renovation. Mr. G. did not bid on the building at that time because of the potential difficulties involved in evicting tenants and because he did not relish the thought of putting people out, some of whom had lived there for many years.

The first buyer did encounter difficulties evicting the tenants and generally tried to make life miserable for them in order to speed up the process.

The renovations were about half completed when the first buyer defaulted on his mortgage, possibly as a result of being unable to handle the very high interest rates. The first mortgage holder foreclosed, and Mr. G. bought the building at a Power of Sale auction along with the approved plans from the first buyer.

Mr. G. took "one day" to decide that the building would be profitable to renovate. Estimates of the cost of the work, potential income and carrying costs were made, using rules of thumb based on experience. The estimates turned out to be accurate.

No outside consultants were used. An architect was engaged by the first buyer to prepare the plans, but any

Case Study Building No. 2

subsequent alterations were made by Mr. G. and his partner. All financial and work appraisals were carried out by Mr. G. The partners acted as their own contractor, and at least one would be on-site at all times to supervise the work.

The work was financed using their own capital, a bank loan and a short-term high interest mortgage from private lenders. Mr. G. indicated that his long experience enables him to obtain financing fairly easily but many people have problems. Bridge financing for renovation can be difficult to get, and mortgage lenders like to lend on the basis of completed work.

The building was half renovated when bought by Mr. G. The actual renovation work, as carried out by Mr. G. and the previous owner, took about six months.

The building was gutted, leaving only the walls, floors and entrance stairs. Unit interiors were also gutted. The renovation included installation of an electric heating system with an underground transformer and individual metering, new wiring and copper plumbing, new windows and a new roof. Fire safety measures were provided in accordance with the Fire Code. The unit interiors were completely new, and the building exterior received a complete facelift on the street sides involving the cleaning and repointing of the bricks. Window sills were replaced or repaired as necessary, and the grounds were landscaped. In short, as Mr. G. pointed out, the building should really be looked at as new construction.

Although the building had already been gutted when purchased, Mr. G. would have done so himself. Four reasons were given. First, a complete renovation is necessary in a 70-year old building. Second, gutting eliminates surprises. Third, one can take advantage of new construction techniques - work can be scheduled efficiently, tasks are replicated, one can buy parts and materials in bulk. Fourth, one can take advantage of new construction skills rather than seek people who can take individual approaches to problems and have the higher level of trade skills necessary for renovation.

Mr. G. did not cite any major roadblocks to renovating the case study building. He was satisfied with the City's approvals process although he indicated that the original owner had had problems. In general, he felt that the City was trying to be flexible towards renovation and trying to improve its relationship with renovators. It is possible that Mr. G.'s good relationship with the City may be partly related to the many new construction aspects of the project. Mr. G. also indicated that many people in renovation had problems obtaining financing and that there were at present not enough people who had developed the business sense necessary to weather the real estate cycles.

After the case study building was renovated, rents were set at whatever it was thought the market would bear. They were subsequently juggled a bit. It was indicated that the renovation budget was tied less to the future income stream than the work that was necessary. Quality was considered to be more important than staying within budget, a reflection of the view that property is a long-term investment. If a higher than anticipated cost was encountered, Mr. G. tended to pay the extra amount; on the whole, however, his long experience in the renovation business meant there were few such surprises.

Mr. G. indicated that economies of scale were realized in the renovation of the case study building and that apartment renovation was "much cheaper" per square foot than single-family houses. He would definitely renovate another apartment building.

As a member of the Renovator's Council of the Toronto Home Builders' Association, he is actively involved in the development and promotion of a renovation industry. To this end, both he and the Council are liaising with the three levels of government regarding such issues as building codes and regulations, training courses and strategies to establish a credible industry.

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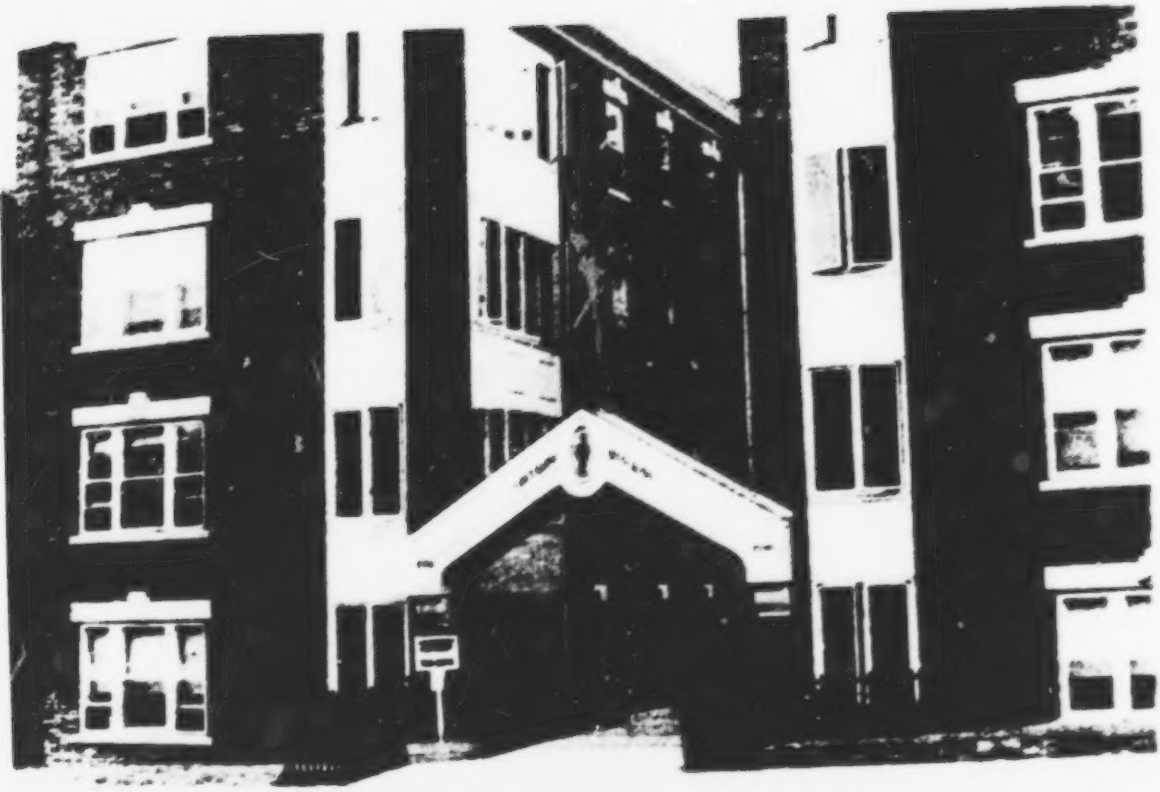

5. FINDINGS AND CONCLUSIONS

In this section we present our general findings describing the large scale renovation process. This is followed by discussion on the potential for streamlining that process, the potential for achieving economies of scale and the possible problems and opportunities presented by post-war high-rise apartment buildings.

5.1 Large Scale Renovation Process

The private renovator developers are usually very small firms who have no hierarchy of decision-making or bureaucratic organization. The most successful firms operate solely as renovation specialists and have had considerable experience in property maintenance and/or renovation. Realtors often wear developers' hats but in general they have been less successful, possibly because of lack of experience. Private renovators tend to have little or no experience with new construction and express no interest in becoming involved with new construction.

The private renovator developer searches to buy buildings with the intention to renovate them. Such renovators are equally divided between "spec" renovators and those who retain ownership and management of the finished product. Most "spec" renovators are involved in condominium conversions although some do sell for retention as a rental project.

Long time owners of buildings have not generally undertaken extensive renovations, possibly because a great many of these buildings are owned by individuals or small groups who view property as a place to invest the money they have made in other endeavours. Such people are not necessarily knowledgeable about renovation or even property maintenance and are therefore less likely to renovate.

Renovation, as with any real estate development, must make economic sense. The successful renovator developers view renovation as a way to enhance long term property investment either for themselves or for the property management firm to which the renovated building is sold. Those seeking short term gains, often through condominium conversions, have been less successful due to the volatile nature of the market.

Renovation offers an attractive investment opportunity for several reasons. Existing building densities are often much higher than those that would be allowed today, and although the cost per square foot of a renovation may even exceed demolition and rebuilding, the larger number of units permits greater revenue. There is also an "upscale" market for these older apartments since the buildings are relatively small, they often contain such highly regarded features as fireplaces or marble entrance stairs, and the units tend to be large. Finally, renovation is a means to escape the constraints of rent controls.

The public sector agencies which have undertaken major renovation projects have done so to provide affordable rental accommodation to low and moderate income tenants and, not least, to rejuvenate or preserve an older residential neighbourhood as a matter of municipal policy. Public agencies, who must maintain relatively low rents within a context of economic self-sufficiency, are faced with much smaller renovation budgets than those found in the private sector. Out of necessity, therefore, their efforts have focussed on rehabilitiation rather than renovation. Neither the upgrading of public housing portfolios nor extending the life of the housing stock generally has yet been a policy focus at any level of government.

Renovation contractors are usually very small firms with low overheads and a willingness to provide close and detailed site supervision of the work. That tight supervision is a proven key to obtaining the desired result within budget. In fact, most renovator developers act as their own general contractors and project managers, permitting them to provide directly two of the most important requisites of successful renovation - daily on-site decision making and supervision. Public agencies will often do likewise, tendering only for the specific trades.

When a renovation job is let to a renovation contractor, that firm is likely to specialize in renovation and not undertake new construction work. Some of the larger firms, who are involved principally with new construction, will take on larger renovation jobs, but they are the exception. In general, larger firms have too high an overhead and too complex an organization to be competitive at the level of renovating a small apartment building. In fact, public agencies have reported difficulties in finding firms capable of undertaking a relatively large renovation job.

The decision on the nature and extent of renovation work to be undertaken on a building is based on a number of factors including building condition, age, availability of financing and anticipated market. For the public agency, the amount of financing and the work requirements of the funding agencies are critical.

With respect to extensive renovations, the decision on whether or not to "gut" a building is somewhat of an individual matter, partly depending on the experience and abilities of the renovator developer. Gutting is a very expensive procedure but preferred by most renovators because it minimizes unknowns, permits the style and organization of the work to approach that of new construction, calls for less highly skilled workers and may in fact be necessitated by the replacement of building systems. If major improvements are contemplated in a building that is over fifty years old, it is simply the most sensible strategy.

The trade skills required for renovation work fall into the same general categories as for new construction. However, the production line techniques of new work cannot usually be applied. There are no standardized dimensions, and new materials must be adapted to old materials and methods. Successful renovators have usually established a stable of sub-trades who exhibit the willingness to be more careful and thoughtful in this adaptation of new to old. Some have formed permanent, in-house work crews comprising all of the basic trades. None of the private renovators interiewed indicated that finding people with the skills required for renovation work was a serious problem.

Careful, constant supervision is critical for successful results at least cost. Essential skills required of the site superintendent include not only the necessary trade skills but the ability to organize the work efficiently and respond creatively to a constantly changing set of problems.

Costing of renovation work is done successfully only as experience grows. New construction costing methods cannot be generally applied, except at the level of a complete "gut" job where only the shell of the original building remains intact. At that level there are fewer unanticipated surprises. However, any renovation remains in the realm of a "custom job". Nevertheless, successful private renovators indicated that their cost estimates generally turned out to be accurate and attributed this to experience.

Private sector financing is generally done in the traditional manner: interim construction financing through the development stages and permanent mortgage financing after completion and rental of the project. Very few of the firms involved can afford large outgoing cashflows. This generally enforces the "one job at a time" approach prevalent in the business.

Public sector financing has generally been done through senior government subsidy of mortgages and grants obtained from programs primarily concerned with new housing production. RRAP, which is the only ongoing renovation program now available, is used principally by individual homeowners and has limited ability to finance more than the most basic health and safety work.

Construction documentation in renovations is as varied in form as in any other type of construction. Simple renovations cn be done with only written descriptions of the work required. If major work such as changing unit sizes or moving walls is done and a building permit required, more extensive documentation is needed. This is often carried out by the developer with the aid of a drafting service. Others employ the services of an architect. These decisions are usually defined by the extent of the work and the experience of the developer.

The single largest roadblock cited by developers is the municipal approval process and the application of new construction standards by regulators. Not only is the process a time consuming exercise but the nature of old construction techniques and materials often makes it impossible to meet modern fire safety standards. In addition, the need to alter plans in the middle of construction because of some unforeseen problem or deterioration causes long delays in an approval system not set up for overnight response. These types of delay have been the financial downfall of many would-be renovators.

By unanimous agreement of all parties surveyed, renovating around tenants is a situation to be avoided. Indeed it is impossible if the renovations are substantial. Every effort should be made to vacate a multiple unit building, at least in large sections, but preferably entirely.

5.2 Roadblocks to Efficiency

One of our objectives in the study was to identify roadblocks to the renovation process and any opportunities to make that process more efficient. The general conclusion is that successful renovators are probably operating as efficiently as possible. These firms are characterized by their small size, low overheads, good internal communication and ability to provide close site supervision and immediate decision-making. Further, the principal difference between the successful and less successful renovator is experience either in renovation or maintenance.

Renovation work does present particular pitfalls which sets it apart from new construction; however, these can virtually be overcome with experience. Successful renovators indicated that they encountered no serious problems with such matters as work and cost estimates, unforeseen surprises or tenant relocation. Similarly, finding people with the higher level of trade skills required was not considered a problem as the successful renovator over time has built up a stable of competent renovation trades.

The most serious problem for the private renovator is undoubtedly the regulatory framework, particularly the municipal approvals process and the strict application of new building codes to renovation. The result is costly and frustrating delays. Although some efforts are currently being directed to remedy this situation, such as the development of a Renovation Code in Ontario or the work of the Renovator's Council, more attention is needed.

The availability of financing and the stability of interest rates are also problems, especially for the new renovator. Although the more experienced renovators generally have a satisfactory source of financing and can weather the real estate cycles, even they indicated that less-than-desired returns on investment and cash flow deficits in the first years of a project were likely. The whole issue of financing may warrant futher investigation, especially in light of the expected importance of renovation over the next twenty years and the general problem of housing affordability.

The public renovation agency is burdened with numerous roadblocks not facing the private sector such as a heavy paper load, a hierarchy of decision making and the need to allocate scarce dollars. Nevertheless, public agencies would do well to approximate as much as possible the "lean" organization found in the private sector, a strategy that Cityhome demonstrated successfully.

Experience is also a key factor governing the success of the public agency. The kind of enthusiasm and drive exhibited by Cityhome should be applauded since they enabled Cityhome to gain rapidly the expertise necessary to carry out a successful acquisition and renovation program. Similarly, the growing pains of the Winnipeg Housing Rehabilitation Corporation are the necessary prerequisite to the establishment of an on-going program.

The public agency, when contemplating a renovation project, should also consider carefully the benefits of taking a longer term approach. The experience of Cityhome, where minimal rehabilitation work failed to extend the life of the building or reduce operating costs, should be avoided. More emphasis is definitely needed on an initial comparison of capital and operating costs over the long term and perhaps the development of enhanced maintenance programs, to be carried out over the life of the building.

The amount of money available under the RRAP program is clearly insufficient to address any concerns about upgrading property substantially or reducing operating costs. At the same time, the public agency should evaluate carefully a project's viability before investing large sums of money into renovation. While taking on the very worst housing may be laudable, it may not be very sensible, particularly if costs can never be recovered or the building is structurally unsound or can never be brought up to acceptable standards of safety and amenity.

5.3 Economies of Scale

Another basic objective in undertaking this study was to explore whether large scale renovation offered opportunities for realizing economies of scale through such means as bulk buying, replicated procedures, careful work organization or the use of prefabricted components.

It was agreed by all surveyed that economies of scale could be obtained, particularly through bulk buying and replication of tasks. The renovation of small apartment buildings was reported to be definitely cheaper per square foot than the renovation of a single family house. Such economies, however, are never likely to be significant.

The potential of each of the four factors identified is limited by the nature of both the buildings and the renovation industry. The number of units in pre-1955 walk-up buildings normally falls in the range of 18-30 units, insufficient to achieve significant economies. Combining two or more buildings into larger projects is simply beyond the capacity of most renovation firms, and operating at several geographic locations is in itself an impediment to realizing any economies, especially in light of the need for careful site supervision. In addition, each building is different and will require its own work program. Even at the level of an individual building, the lack of standardized dimensions and amount of custom work will limit the potential of buying in bulk, replicating tasks or using prefabricated components. Organization of the work would require considerable pre-planning, and the threshold for achieving economies of scale is likely to be much greater than 30 units.

It may be possible for some public agencies, such as C.M.H.C., to realize economies of scale since they have a direct interest in large public housing estates. Bulk buying and careful work scheduling would seem to present real opportunities. Prefabrication may be an option but there has been little Canadian experience and a certain amount of development would be necessary. The potential of such components is further limited by the fact that they would have to be capable of being carried by hand into the buildings.

The renovation industry itself will continue to pose a constraint on undertaking large numbers of units at one time although the public agency, through trial and error, should be able to determine the optimum number of units for a single work crew. Evidence suggests that larger contractors are not very interested in large renovation jobs and are also less efficient than the smaller firms. By breaking up a large job into smaller units, the public agency might also create a situation where tenants may be relocated temporarily within a project while their units are being renovated.

5.4 High Rise Apartment Buildings

The renovation of newer high-rise apartment buildings has not been examined in this study simply because almost all major renovation activity is occurring in the older walk-up buildings. Nevertheless the need to confront the high rise situation is becoming increasingly apparent. As indicated by research recently undertaken for the Ontario Ministry of Municipal Affairs and Housing,* the renovation work that will need to take place in high-rise buildings will principally involve the replacement and upgrading of modern systems which have deteriorated prematurely (often as a result of water damage) or have worn out from normal wear and tear. These include mechanical systems, wall systems and parking structures. Over the next twenty years, these buildings will constitute by far the largest share of apartment renovation activity in Canada.

At this scale renovation should attract much larger operators who have until now concentrated on the new construction field, sometimes the very structures that are to be renovated. Modern construction techniques and materials common to the original will be used. Tradesmen will be much more interchangeable from new construction to renovation.

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* Klein & Sears, Study of Residential Intensification and Rental Housing Conservation, March 1983.

Serious study of this aspect of the future building industry must be undertaken to estimate its true magnitude and to encourage the industry to gear up. Many of the important lessons of renovating older buildings will hold true and should be anticipated: close knowledgeable construction supervision, preparation to relocate tenants and careful cost/benefit analysis of the extent of the work. This whole field needs to be examined in depth to avoid enormous and unnecessary financial and social costs.

APPENDICES

APPENDIX A

APPENDIX A

QUESTIONS FOR OWNER RENOVATORS

1. Background Information

What is the address of the building?

How would you describe the building?

- number of units
- number of floors
- age of building
- special features

Have you renovated other apartment buildings?

- how many?
- what types of building?

How did you get involved in renovation?

How long have you been doing renovations?

2. The Decision to Renovate

For New Owners

Did you buy this building with renovation in mind?

What buildings are best for renovation?

How important is location?

Did you do a feasibility analysis before you bought the building?

If so, what did it include?

- preliminary estimate of work to be done?
- what consultants did you engage (e.g. structural engineer)?
- how did you deal with non-visible items?
- did you do a preliminary cost estimate of the work?
- did you assess the potential market for the renovated units?
- did you do a financial appraisal?

For Long Time Owners

Why did you decide to renovate the building? (other options would include leave as is, sell, implement a better maintenace program)

How did you decide that renovation was feasible?

How did you decide the extent of the renovation? (complete, moderate, superficial)

3. Renovation Process

3.1 Evaluation of Building

After you bought the building, how did you estimate the amount of work needed? Who did it? What special consultants were used?

What were your priorities?

How did you deal with non-visible items?

How did you decide the extent of the renovation? (complete, moderate, superficial)

3.2 Cost Estimate and Financing

How did you estimate the cost of the cost of the work? Who did it?

What are the problems of doing an accurate estimate?

How did you minimize the risk of cost overruns and unforeseen conditions?

After you decided upon renovation, did you do another financial appraisal?

How was the project financed? (construction financing plus mortgage or just a mortgage)

3.3 Selection of Architect and Contractor

Did you use an architect? Why or why not?

Did you use a general contractor? If not, why not?

Did you select the contractor using a tendering process?

Who was your contractor? What sort of firm is it?

What type of contract did you use? (fixed sum, cost plus, unit pricing?

How did you deal with risk?

3.4 The Work

What actual work did the renovation involve?

- structural
- electrical
- heating
- plumbing
- fire protection
- soundproofing
- parking
- unit improvements
- other

Did you gut the building? In general, when should you gut?

Were there problems? surprises? delays?

Were "extras" added to the contract? Did they represent unforeseen problems or an actual change in the nature of the renovation?

How did you specify the work needed? (plans, specifications, working drawings)

How was the work managed?

Was there a superintendent, for example?

How important is site supervision?

3.5 Relationship with Tenants

How did you deal with the existing tenants?

What sort of amenities do tenants value in a renovated building?

What are potential condominium buyers looking for?

4. Evaluation

What would you have done differently?

How could the renovation process have been made more efficient?

Where could costs savings have been made?

5. Management Plan

Will you continue to own the building?

Will you be making (or have you made) any changes to the maintenance system in order to maintain building quality?

6. Potential for Renovation Industry

What is the potential for a renovation industry?

Will you continue to do renovation work?

What type of construction company is best suited to renovation work?

What is needed to improve the renovation industry?

- particular skills
- different procedures
- different regulations

7. Relationship with Government

What problems are caused by the existing building codes, fire codes, and bylaws?

How could they be improved?

Did you or the contractor deal with the municipality?

How flexible was the municipality?

Are you satisfied with the approvals process?

How do different municipalities compare?

What is the impact of rent controls?

8. Other

Can you suggest anyone else we might talk to?

APPENDIX B

APPENDIX B

SELECTED LARGE SCALE RENOVATION PROJECTS

This appendix describes three large-scale renovation projects or programs. "Instant Rehab" was undertaken in New York City in the late 1960's. The "experimental modernization program" was carried out in six European countries in 1970-1972. The "four day package" has been the principal means by which the Greater London Council has modernized its housing since the mid-1970's. There has been very little Canadian experience in the area of large scale renovation, particularly with housing owned by public agencies. These projects were chosen either because they shed light on the problem of tenants in place or they illustrate some innovative or systematic approach to large scale renovation.

1. Instant Rehab*

Funded by the Department of Housing and Urban Development, the Instant Rehab project was undertaken in 1967 in New York City and involved the complete rehabilitation in 48 hours of dumbbell tenement buildings. Built in the late 19th century, dumbbell tenements, also known as Old Law tenements, are long, narrow buildings with 4-6 small apartments on each floor. The term "dumbbell" is derived from the existence of a small, completely enclosed air shaft. The standard of construction was generally poor. Rooms are small and lack adequate light and ventilation, despite the air shaft. The lack of hallways means that access to each of the rooms is through another room. In 1976, there were over 300,000 such dwelling units in New York.

In the Instant Rehab project, tenants were moved to hotels and their belongings locked in steel boxes on the street. The apartments were first gutted and then rehabilitated using prefabricated panels and utility cores. Space within each apartment was completely reorganized to provide larger but fewer rooms, and in some cases two apartments were joined to create one unit.

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*Source: Alfred Medioli, Housing Form and Rehabilitation in New York City" in Housing Form and Public Policy in the United States, ed. by Richard Plunz (New York: Praeger, 1980), pp. 129-156.

In his critique on the project, Alfred Medioli concluded that while Instant Rehab achieved its objectives of modernizing tenements in a very short period, the ultimate success of the project was constrained by the buildings themselves. The original standard of construction meant that floors often sagged. The modernized units still failed to meet F.H.A. minimum light and space standards. There was still virtually no usable open space. In addition, the cost per square foot was as high or higher than new construction.

2. Experimental Modernization Program of the European Coal and Steel Community*

The experimental modernization program of the European Coal and Steel Community was carried out in 1970-1972.* It involved nine apartment or row house projects in six countries. Most contained approximately 100 units. All but one of the project owners had had previous modernization experience. The purpose of the program was to improve the efficiency of rehabilitation through the use of prefabricated components and careful work organization. The report provides a review and assessment of the program in terms of technical, architectural, economic and social aspects, and recommendations are made with respect to future modernization schemes. A detailed technical description of the work carried out on each of the projects is provided. Some of the major points made in the report are:

1) The work tended to be extensive. The Commission felt that modernization involved not only updating bathrooms and kitchens, but also undertaking such work as modifying internal layouts or increasing floor areas if necessary to meet modern standards. The work generally also included improvements to the building's shell, new partitions and inside doors, new heating and water systems, sound and heat insulation, floor coverings and environmental improvements. The report recommended that for maximum psychological benefit, all modernization work should be carried out at once rather than be phased.

2) Although it was originally decided to leave residents in their units, this idea was abandoned in half the projects. All the firms found it difficult to work with the tenants in

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*Source: Commission of the European Communities. Report on the ECSC Experimental Programme of Modernization of Housing. 1975.

place; similarly, tenants' lives were seriously disrupted by the work, which tended to be extensive. Depending on the particular project, the modernization took between two and thirteen weeks, much less than conventional rehabilitation projects. The firms reported that the most tenants could be expected to put up with was six weeks of disruption.

3) One of the purposes of the program was to test the use of prefabricated components, and a nine month period was allowed for research and prefabrication. In general, prefabricated components were limited to light elements that could be carried through buildings. In one project, an entire prefabricated bathroom unit was used; however, the time saved by rapid installation was offset by the time necessary for doing finishing work. While the Commission was optimistic about the future of prefabricated components, the firms involved felt that most work would continue to be undertaken in the traditional manner.

4) The projects involved a great deal of pre-planning, including liaison with residents. The work was always organized in advance, with defined tasks and time schedules established. However, it was found that the expected rates of work were not attained until 1-1/2 or 2 months and that it was impossible to keep teams of workers working continuously. Nevertheless, all the project owners and the firms involved in the work were enthusiastic about the potential of rational work organization.

5) Each of the project owners built a prototype unit which was helpful in terms of tenant liaison and in assisting contractors in the preparation of their bids.

6) Firms were reluctant to give lump sum prices because of the risk involved and the need to obtain tenant cooperation. It was difficult to find general contractors, and separate contracts had to be let. Contractor's prices could be as much as 30% higher than similar work undertaken on a new construction project.

7) The report concluded that modernization costs were on average about 40% of the costs for a new building of comparable size and amenity. In one German project, the internal layouts and apartment sizes were left untouched in half the apartments. In the other half, internal layouts were altered and some apartments were combined to make larger units. The costs for the unmodified units were 65% of the costs for the modified ones.

3. Four Day Package*

In the mid-1970's, the Greater London Council developed a "four-day package" to modernize their portfolio of 27,000 apartments built between the wars. The package has met with considerable success and is being extended this year to post-war units.

The four-day package is used to modernize kitchens and bathrooms and install central heating while tenants remain in their units. Structural alterations are not undertaken. Any other interior work is considered part of normal maintenance. Improvements outside the unit, such as improving building access or landscaping, are treated as separate packages.

Technical development of the four-day package involved developing prefabricated components and new materials such as a quick drying adhesive. Pre-testing of the package was also carried out. The result was a standardized package of improvements and a four-day schedule. While participation in the program is voluntary, tenants must opt for the whole package or none at all. About 75% of tenants accept the package when offered.

Good communication with tenants is considered essential to the program's success. Tenants are informed of the package as soon as their building is selected, and a "show flat" is set up. Prior to commencing work, the contractor visits each tenant to indicate exactly what work will occur. A G.L.C. employee has an office in the show flat and liaises with tenants during the process, in addition to other project management duties such as unit inspections, work specification and contract supervision.

The work is tendered, and contractors must submit both a price and a work organization plan. A selected contractor will be tested on a group of vacant apartments before being awarded a contract for up to 200 occupied units. The contractor must adopt the four-day schedule and be willing to accept a great deal of pre-planning and site supervision. The volume and continuity of work plus a system of prompt payment acts as a major inducement to contractors.

Experience has shown that one contractor can undertake most efficiently six units per week on one site. The G.L.C. has a current stable of 10-12 contractors, who complete about 5,000 units annually. Costs per unit in 1982 averaged £4,000 £ 4,500 ($8,000-$9,000).

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*Source: Shankland Cox Partnership. The Four Day Package: A study of the GLC's experience in the rapid modernization of inter-war flats with tenants in residence. (U.K. Department of the Environment, 1979).

"Housing Case Study - Package Improvement", Architects Journal, 1 December 1982, p. 79.

APPENDIX C

APPENDIX C

ANNOTATED BIBLIOGRAPHY OF LARGE-SCALE RENOVATION

Appendix C focuses on the literature dealing specifically with either large scale renovation or the renovation industry. Several of the sources are manuals offering advice on how to undertake a renovation. In addition to Canadian material, American and British works are also described. Two of the works deal with European experience.

1. Canada

Anderson, W.G. Planning and Research. Residential Rehabilitation and Conversion - Process and Issues: Interim Report: The Business of Housing Renovations in the City of Toronto. Prepared by W.G. Anderson Planning and Research in association with L.M. Klein Architects, A.J. Vermeulen Quantity Surveyors and Clayton Research Associates for the Ontario Ministry of Housing, 1980.

This 1980 Interim Report analyzed the feasibility of several hypothetical renovation projects and provided a general profile of professional renovators in Toronto. The feasibility analyses were carried out for a single family house, a duplex, apartments above a store and an 18-unit apartment building. Partial and full renovation options were looked at as well as whether the project would be sold or rented. Renovation for sale was found to be generally profitable, but not for rental. It was concluded that while the 18-unit building was not feasible for rental at an interest rate of 13%, it might be at 11%.

Interviews were also conducted with 10 developer renovators, using a structured questionnaire. Most had been in the business from 2-5 years and had minimal staff. Typically those undertaking full renovations were employed as full-time renovators doing 10-20 houses a year, while those doing partial renovations were often real estate or mortgage brokers or lawyers doing it as a sideline. There was very little interest in renovating properties for rental since long term mortgages would have to be arranged and most of the renovators had neither the skill nor inclination for property management.

Anderson, W.G. and Gabor Popper Architects. Zoning Impact Study. Prepared for the Renovator's Council of the Toronto Home Builders' Association, March 1982.

This study analyzes a residential block in the City of Toronto in terms of its compliance with the Zoning By-Law. The block was chosen for its mix of house types, setbacks, parking situations, etc. None of the houses complied completely with the Zoning By-Law. In fact, over half of the houses failed to meet the regulations regarding front and side setbacks, gross floor area, and parking provision. This meant that hearings would be required for even minor improvements such as decks and dormer windows. The report makes several specific recommendations aimed at reforming the By-Law to accommodate rehabilitation.

City of Toronto Housing Department, Central Mortgage and Housing Corporation and the Ontario Ministry of Housing. Measuring Tapes and Mortgages: A Complete Guide to Buying and Renovating Non-Profit Housing. C.M.H.C., Ottawa, 1980.

This manual offers a "practical guide for the novice ... and others who wish to better their knowledge of the non-profit rehabilitation program." It is a very detailed step-by-step guide, covering all aspects of the renovation process from property acquisition to occupancy. In addition to technical procedures, the manual offers advice on such matters as the organization of the non-profit group, the role of C.M.H.C., the skills required and the need for technical assistance. Detailed information is also given on such basic but confusing subjects as construction terminology and building codes.

Clark, J. An Examination of the Characteristics of Rehabilitation Contractors: Pilot Study for Ottawa. C.M.H.C., Ottawa, 1981.

This study attempts to determine the extent to which building permits may be used as a data source for studying the rehabilitation industry. The author attempted to contact 163 contractors whose names appeared on the building permits, but 106 were not in the phone book and 32 either did not answer the telephone or return calls left on an answering machine. The remaining 25 were interviewed. The conclusions included: building permits did not provide a good data source, permit value information was deliberately understated, and most contractors seemed to obtain most of their work through personal reference.

Crenna, C.D. Key Problems and Future Issues in the Improvement of the Existing Housing Stock: A Comparative Analysis of Western Europe and North America. C.M.H.C., Ottawa, November, 1980.

A discussion paper resulting from a 7 1/2 week study tour of the U.S. and Europe. Explores the question: "What are the hardest things to resolve in order to conserve and upgrade the existing stock of housing?" Compares current approaches in housing policy and programs. The prospects for establishing a rehabilitation industry are discussed.

Denhez, M. (ed.). How to Plan for Renovations: Canadian Case Studies. Heritage Canada, Ottawa, 1979.

Commissioned by Heritage Canada, this book is based on an analysis of 40 recent renovation projects. The projects were a varied group: small and large scale, commercial and residential, profit and non-profit. The purpose was to identify recurring components in the cost of renovation projects and the areas where cost overruns presented recurring problems. The first half of the book is a step-by-step guide to the renovation process covering such matters as the initial feasibility analysis, financing methods, cost estimation and types of contracts. The second half contains an outline of the renovation with cost information for each of the case studies.

Hulchanski, J.D. Urban Residential Land Use, Conservation, Densification and Intensification: A Review of the Literature. Ontario Ministry of Municipal Affairs and Housing, 1982.

This major literature review and bibliography deals with the range of strategies available both to upgrade housing and to produce new units through renovation, conversion, infill and redevelopment. The author discusses the literature in terms of factors affecting demand, factors affecting supply and patterns/impacts.

Lehrman, J. "Renewal: A Congress on the Rehabilitation of Buildings." Canadian Architect. January, 1980.

A short article listing some of the major points raised at a Congress on the Rehabilitation of Buildings, sponsored by the Canadian Committee on Building Research and the National Research Council. They include:

1) A rehabilitation project is likely to prove economical if the structure is sound and the finishes are "not too high";

2) Rehabilitation poses more and different problems than new construction, and outside advice, such as that of a quantity surveyor, may often have to be sought;

3) The design process is different from that required by new work in that a careful analysis of the existing structure is required;

4) The process of financing a rehabilitated building is similar to that for a new structure;

5) The economic context for rehabilitation may alter significantly if taxation changes are adopted, notably the inclusion of a fast write-off on renovation expenses and the abolition of tax incentives for demolition.

Ontario Ministry of Housing. Building Toward 2001: Proceedings. Government of Ontario, 1981.

The 1981 Building Toward 2001 conference included sessions on housing renovation and the renovation industry. The published Proceedings offer many useful insights on such issues as building codes and regulations, the need for skills training, the difficulties in finding financing for projects and the lender's perspective. The focus is on single family housing.

Toft, M. "Renovation: Where Risks Run High." Canadian Building. January/February 1982, pp. 19-24.

A brief article outlining some of the attributes and pitfalls of house renovation, based on interviews with architects and professional renovators. Identifies three types of renovation: cosmetic, middle-of-the-road and total. The middle-of-the-road approach is criticized because of the risk of damaging structural elements through the removal of walls, for example. Location, marketability and zoning regulations are identified as the key factors determining the extent and feasibility of renovation. In fact, the time taken to obtain zoning variances can be enough to kill a project. The most important ways renovation differs from new construction are the need for constant on-site supervision and the daily appearance of new problems which demand specialized knowledge and skills.

2. United States

Center for Community Development and Preservation. Building A Foundation for Urban Revitalization: Tools and Techniques for the Moderate Rehabilitation of Multifamily Housing. White Plains, New York: Center for Community Development, 1979.

The moderate rehabilitation of multifamily housing, as defined in this step-by-step guide to the process, is the work needed "to eliminate unsafe conditions, prevent failure of the building's systems, or achieve significant energy efficiency". It does not involve relocation of tenants. The book is based on the results of 32 case studies and over 300 questionnaires filled in by local officials, private developers and community organizations. The average rehabilitation cost of the projects surveyed was $7,500 (U.S.) per unit. The book identifies six issues whose resolution is critical to the success of any rehabilitation program and on which the advice given in the book is centred: (1) how to organize and manage the program, (2) how to obtain the cooperation of owners and tenants, (3) how to estimate costs and determine financial feasibility, (4) how to secure rehabilitation financing, (5) how to contract for and carry out rehabilitation work, and (6) how to prolong the success of the project. Numerous examples are given along with an annotated bibliography of relevant material.

Center for Community Development and Preservation. Innovations in Housing Renovation: Techniques for Financing Multifamily Housing Rehabilitation. White Plains, New York: Center for Community Development, 1979.

The purpose of this guidebook is to "assist rehabilitation practitioners in developing a clear understanding of all available or potential financing tools". Both public and private approaches to financing multifamily rehabilitation projects are described. Almost half the book is devoted to carrying out full financial analyses on typical buildings.

Nolan, J.R. "Effective Strategy is Needed for Moderate Rehabilitation of Multifamily Housing". Journal of Housing. February, 1980.

This article is aimed at public agencies who are responsible for developing and implementing moderate-cost rehabilitation programs for multifamily housing. It discusses a number of major issues critical to the success of such a program and provides a detailed outline of all the steps in the process. Emphasis is on implementation; for example, advice is given on how to write up work specifications.

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Rogg, N.H. Urban Housing Rehabilitation in the United States. United States League of Savings Associations, 1978.

This book is a general overview of urban housing rehabilitation in the U.S. and is based on visits to several cities. Numerous constraints on rehabilitation are identified and recommendations are made, often aimed at the federal policy level. No difference is made between single family and large scale renovation. The author noted that builders preferred new construction: "rehabbing" involved more custom work, costs were difficult to estimate, it often proved more costly than new construction, overhead costs were 2-3 times more, and building codes and zoning regulations generally related to new construction. In addition, there were often time-consuming approvals procedures and a lack of local staff knowledgeable about rehabilitation work. The author indicated that a rehabilitation industry was necessary but its development would need to be encouraged through government policy and the availability of financing.

U.S. Congress. Multifamily Housing Rehabilitation: Hearings Before a Subcommittee of the Committee on Banking, Housing and Urban Affairs. Senate, 95th Congress, 2nd Session, 1978.

This document explores factors leading to the abandonment of multifamily housing, potential initiatives to encourage housing maintenance and the rehabilitation of deteriorated housing. The capacity of the rehabilitation industry to undertake rehabilitation on the scale needed is discussed along with the role that government has played in retarding or facilitating successful rehabilitation.

U.S. Department of Housing and Urban Development, Office of Community Planning and Development, Administering a Multifamily Rehabilitation Program. Washington, D.C., January, 1979.

This guidebook is designed to help local officials develop and administer a multifamily rehabilitation program within the context of neighbourhood revitalization. The book gives general strategic advice and provides information on federal progams and procedures. Topics covered include: (1) the need to survey the neighbourhood for information on residents, owners and buildings, (2) funding programs and financing sources, (3) the role of building codes and zoning regulations, and (4) liaison with residents. One chapter is devoted to the legal process of relocating residents. The renovation process itself is not discussed.

U.S. Department of Housing and Urban Development, Office of Community Planning and Development. Financing Multifamily Rehabilitation: A Guidebook for Local Government. Washington, D.C., January, 1979.

This guidebook is designed to provide local officials with "sufficient background in the financial aspects of multifamily housing rehabilitation to enable (them) to work effectively with professional developers, as well as inexperienced property owners, in putting together and executing a financially feasible rehabilitation project". While there are general descriptions of the private rehabilitation process and the role of government in applying various programs, the book focuses on types of private and public financing, the process of undertaking financial feasibility analyses and the calculation of mortgages. The physical renovation process itself and any costs associated with it are not discussed.

U.S. Department of Housing and Urban Development. Project Rehab Monitoring Report. HUD-F-22, prepared by Arthur D. Little, May 1971.

This report represents a preliminary evaluation of Project Rehab, a large scale rehabilitation program initiated by HUD in 14 cities in 1969. Project Rehab aimed to complete 37,500 units in two years but by mid-1971 only five cities had completed any units. The focus is large scale rehabilitation but no distinction is made between multiple-unit and other types of dwellings. Some of the findings of this report are:

1) Large scale rehabilitation is not necessarily less costly than new construction;

2) Significant cost reductions due to economies of scale are unlikely because of the multiplicity of variables, the likelihood of delays, etc.;

3) Large scale rehabilitation presents a significant business opportunity for small firms with low overhead costs and a high degree of flexibility. It is not likely to attract large, highly-capitalized firms who have a high overhead and would need to undertake several projects simultaneously.

3. Britain

Bowen, E. "Envelope Schemes - Will the Government Give the Stamp of Approval?" Planner News. October, 1982.

A brief description of "enveloping" schemes in four English cities. Intended to help address the problem of housing decline in inner areas, enveloping consists of the letting of contracts to improve the "complete external fabric" of a block of houses at no cost to the individual owner. Improvements may include new roofs, skylights, doors and windows, brick cleaning and pointing, etc. Funding is also available for internal improvements should the owner want it. The author cites a number of advantages of enveloping: the building life is extended, confidence in an area is increased, both private investment and the take-up of grants for internal improvements are stimulated, and the size of the contracts means that large, experienced contractors will be attracted.

Brunt, T. "Housing Case Study - Envelope Treatments", Architects Journal. December, 1982.

A discussion of the "enveloping" program in Birmingham, England, where the external shells of all the houses in a block, street or area are improved. One of the largest projects, involving 588 houses in a single area, was let in two contracts which required the contractors to complete about 30 houses per month. Residents remained in their houses. The City of Birmingham assumed a technical and administrative role in the form of design work, project management, cost estimation and control, and liaison with residents. Experience has led to the production of standardized contract documents and a better ability to estimate quantities. The author notes that team work, mutual respect, residents' confidence, a quick decision-making process and quality of workmanship are essential to the success of enveloping.

Pearson, D. "Housing Case Study - Package Improvements". Architects Journal. December 1, 1982.

A discussion of different "package" improvement schemes which permit housing authorities to undertake large scale renovation without relocating tenants. For example, in the four-day package of the Greater London Council, bathrooms and kitchens are modernized and central heating installed in four days. In another case, the London Borough of Hounslow has developed a 10-year work plan for its 3500 inter-war dwellings based on a survey of building condition and using computer files containing drawings and a record of repairs. The author concludes that the most important benefit of package schemes is the high level of tenant satisfaction although any work carried out with tenants in place cannot address some of the more serious deficiencies of housing projects such as overcrowding, high child densities or accommodation which is unsuitable for families.

U.K. Department of the Environment. An Investigation of Difficult to Let Housing. (3 vols.) London: Housing Development Directorate, Occasional Paper Series, 1980.

This comprehensive report is based on a 1976/77 survey of 30 "difficult to let" housing estates and interviews with 250 people. The estates are characterized by high turnovers and concentrations of very poor families who have no other housing option. The report identifies common problems and describes remedial measures which have been undertaken in 16 of the estates. Although neither large scale renovation nor physical improvement schemes are addressed specifically, such approaches are often briefly described in the 16 profiles.

The most serious problems are inadequate maintenance and management, vandalism, lack of security, high child densities and a concentration of "problem" families. Physical building condition is not generally a problem although many of the post-war high-rise buildings suffer from water leakage. There are, however, problems of noise and lack of security brought about by poor design; e.g., bedrooms next to the living rooms of adjoining units, bedroom windows directly adjacent to public areas, the poor design of open space and building access. The report recommends that housing authorities adopt a "combined" approach to "difficult to let" housing which addresses the range of social/physical/management problems.

4. Europe

Dumouchel, J.R. European Housing Rehabilitation Experiences: A Summary and Analysis. Washington, N.A.H.R.O. Publications, 1978.

This book presents an overview of rehabilitation legislation, programs and experience in Europe and is actually a summary of a comprehensive report (Robert L. Hale, Jr., Selected European Programs Involving Preservation of the Existing Housing Stock and Neighbourhoods). The experiences in Great Britain, France, West Germany and Belgium are presented along with a chapter on the Experimental Modernization Program of the European Coal and Steel Community. Applicability to the United States is also discussed.

While the book's focus is on legislation and programs, some attention is paid to actual rehabilitation efforts, and in particular, there are some brief discussions of work scheduling and rehabilitation technology. One example is Neue Heimat in Germany, a housing organization developed by the labour unions which owns and operates 400,000 dwelling units. Their program of modernization utilizes prefabricated parts, especially small components that can be carried through buildings. More important is the careful attention paid to organizing the work. Neue Heimat estimated in the mid-1970s that, using prefabricated components, a unit could be rehabilitated in five days. A skilled foreman was essential to the process. In addition, to achieve any economies of scale, it was necessary to modernize a batch of at least 50 units. If prefabricated components were used, the threshold was increased to 160 units.

APPENDIX D

APPENDIX D

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POOR

QUALITY

ORIGINAL